



## 30. Share Capital and Reserves - continued

### Treasury Shares/own shares

	2017 €m	2016 €m
At 1 January	(14)	(28)
New Shares allotted to the Employee Benefit Trust (own shares)	(63)	-
Own Shares released by the Employee Benefit Trust under the 2014 Performance Share Plan	63	-
Shares acquired by the Employee Benefit Trust (own shares)	(3)	(4)
Treasury Shares/own shares reissued	2	18
At 31 December	(15)	(14)

As at the balance sheet date, the total number of Treasury Shares held was 53,848 (2016: 83,423); the nominal value of these shares was €nil million (2016: €nil million). During the year ended 31 December 2017, no shares (2016: 13,936) were reissued to satisfy exercises under the Group's share option schemes and 29,575 (2016: 697,903) shares were reissued to the CRH Employee Benefit Trust in connection with the release of awards under the 2014 Performance Share Plan (2016: 2006 Performance Share Plan). These reissued Treasury Shares were previously purchased at an average price of €15.89 (2016: €17.23). No Treasury Shares were purchased during 2017 or 2016.

As at the balance sheet date, the CRH Employee Benefit Trust held 337,909 (2016: 284,980) Ordinary Shares on behalf of CRH plc in respect of awards made under the 2014 Performance Share Plan, the 2014 Deferred Share Bonus Plan and the 2013 Restricted Share Plan. The nominal value of these own shares, on which dividends have been waived by the Trustees, amounted to €0.1 million at 31 December 2017 (2016: €0.1 million).

### Reconciliation of shares issued to net proceeds

	2017 €m	2016 €m	2015 €m
Shares issued at nominal amount:			
- Performance Share Plan Awards	1	-	-
- scrip shares issued in lieu of cash dividends	1	2	2
- share options and share participation schemes	-	1	-
- share capital issued - equity placing	-	-	26
Premium on shares issued	180	216	1,722
Total value of shares issued	182	219	1,750
Issue of scrip shares in lieu of cash dividends (note 12)	(77)	(167)	(132)
Shares allotted to the Employee Benefit Trust*	(63)	-	-
Expenses paid in respect of shares issued	-	-	(25)
Net proceeds from issue of shares	42	52	1,593

\* During the year, shares were allotted to the Employee Benefit Trust to satisfy the vesting and release of awards under the 2014 Performance Share Plan to qualifying employees. An increase in nominal Share Capital and Share Premium of €63 million arose on the allotment to the Employee Benefit Trust.

### Share premium

	2017 €m	2016 €m
At 1 January	6,237	6,021
Premium arising on shares issued	180	216
At 31 December	6,417	6,237

## 31. Business Combinations

The acquisitions completed during the year ended 31 December 2017 by reportable segment, together with the completion dates, are detailed below; these transactions entailed the acquisition of an effective 100% stake except where indicated to the contrary:

### Europe Heavyside:

*Germany:* Fels (31 October) and land adjacent to Saal Quarry (27 December);

*Ireland:* certain assets of Kilsaran RMC Ltd. (14 September); and

*UK:* J.B. Riney & Co. Ltd. (12 May), increased stake in Scotash Ltd. to 100% (19 July), assets of East Antrim Mini Mix (1 August), Fields Farm (15 December) and increased stake in Newhaven Roadstone Ltd to 100% (29 December).

### Europe Distribution:

*Germany:* AGP Bauzentrum GmbH (31 August) and Kruger and Scharnberg GmbH (30 October).

### Americas Materials:

*Canada:* Carrières St-Jacques Inc. (22 February) and K.J. Beamish Construction Co. Ltd. (26 May);

*Colorado:* Connell Resources (24 February);

*Connecticut:* Costello Industries, Inc. (4 January);

*Florida:* Suwannee American Cement Co., Inc., Prestige Concrete Products, Inc. and A. Mining Group, LLC (30 November);

*Idaho:* certain assets of Hardcore Ready Mix (12 July);

*Indiana:* Mulzer Crushed Stone, Inc. (10 February);

*Minnesota:* Hardives, Inc. (24 February) and Chard Tiling and Excavating and Rivers Edge (24 February);

*New Jersey:* Byram Quarry (4 December);

*Oklahoma:* United Materials (28 September);

*Texas:* assets of Henderson Asphalt (30 August); and

*Washington:* Columbia Asphalt (13 February).

### Americas Products:

*Alabama:* Block USA (29 September);

*Arkansas:* Advanced Environmental Recycling Technologies, Inc. (1 May);

*Illinois:* certain assets of Elston Materials, LLC (13 September);

*Oregon:* Advantage Precast, Inc. (12 July), Hansen Architectural Systems, Inc. (8 August) and Spec Industries, Inc. (14 November);

*Pennsylvania:* Behney Corp (31 July); and

*Texas:* Duravault, Inc. (11 May).



## 31. Business Combinations - continued

The identifiable net assets acquired, including adjustments to provisional fair values, were as follows:

	2017 €m	2016 €m	2015 €m
<b>ASSETS</b>			
<b>Non-current assets</b>			
Property, plant and equipment	1,536	19	5,413
Intangible assets	56	14	298
Equity accounted investments	-	-	24
Other financial assets	-	-	5
<b>Total non-current assets</b>	<b>1,592</b>	<b>33</b>	<b>5,740</b>
<b>Current assets</b>			
Inventories	114	9	621
Trade and other receivables (i)	129	28	1,533
Cash and cash equivalents	174	4	494
<b>Total current assets</b>	<b>417</b>	<b>41</b>	<b>2,648</b>
<b>LIABILITIES</b>			
Trade and other payables	(149)	(14)	(1,549)
Provisions for liabilities	(49)	18	(581)
Retirement benefit obligations	(52)	(1)	(87)
Interest-bearing loans and borrowings and finance leases	(12)	(3)	(175)
Current income tax liabilities	(22)	4	(149)
Deferred income tax liabilities	(132)	35	(627)
<b>Total liabilities</b>	<b>(416)</b>	<b>39</b>	<b>(3,168)</b>
Total identifiable net assets at fair value	1,593	113	5,220
Goodwill arising on acquisition (ii)	487	71	3,187
Joint ventures becoming subsidiaries	-	-	(25)
Non-controlling interests*	(20)	(9)	(489)
<b>Total consideration</b>	<b>2,060</b>	<b>175</b>	<b>7,893</b>
<b>Consideration satisfied by:</b>			
Cash payments	2,015	153	7,790
Deferred consideration (stated at net present cost)	45	21	97
Contingent consideration	-	1	-
Profit on step acquisition	-	-	6
<b>Total consideration</b>	<b>2,060</b>	<b>175</b>	<b>7,893</b>
<b>NET CASH OUTFLOW ARISING ON ACQUISITION</b>			
Cash consideration	2,015	153	7,790
Less: cash and cash equivalents acquired	(174)	(4)	(494)
<b>Total outflow in the Consolidated Statement of Cash Flows</b>	<b>1,841</b>	<b>149</b>	<b>7,296</b>

Note (i) and (ii) are set out overleaf.

\* Non-controlling interests are measured at the proportionate share of net assets in 2017 and 2016 and fair value in 2015.

None of the acquisitions completed during the financial year was considered sufficiently material to warrant separate disclosure of the attributable fair values. The initial assignment of fair values to identifiable net assets (most significantly, property, plant and equipment) acquired has been performed on a provisional basis in respect of certain acquisitions; any amendments to these fair values made during the subsequent reporting window (within the measurement period imposed by IFRS 3 *Business Combinations*) will be subject to subsequent disclosure.

- (i) The gross contractual value of trade and other receivables as at the respective dates of acquisition amounted to €132 million (2016: €30 million; 2015: €1,588 million). The fair value of these receivables is €129 million (all of which is expected to be recoverable) (2016: €28 million; 2015: €1,533 million).
- (ii) The principal factor contributing to the recognition of goodwill on acquisitions entered into by the Group is the realisation of cost savings and other synergies with existing entities in the Group which do not qualify for separate recognition as intangible assets. Due to the asset-intensive nature of operations in the Europe Heavyside and Americas Materials business segments, no significant identifiable intangible assets are recognised on business combinations in these segments. €260 million of the goodwill recognised in respect of acquisitions completed in 2017 is expected to be deductible for tax purposes (2016: €15 million; 2015: €254 million).

Acquisition-related costs, excluding post-acquisition integration costs, amounting to €11 million (2016: €2 million; 2015: €152 million) have been included in operating costs in the Consolidated Income Statement (note 3).

The following table analyses the 31 acquisitions completed in 2017 (2016: 21 acquisitions; 2015: 19 acquisitions) by reportable segment and provides details of the goodwill and consideration figures arising in each of those segments:

Reportable segments	Number of acquisitions			Goodwill			Consideration		
	2017	2016	2015	2017 €m	2016 €m	2015 €m	2017 €m	2016 €m	2015 €m
Europe Heavyside	8	5	-	155	2	-	698	15	-
Europe Lightside	-	2	3	-	7	6	-	22	17
Europe Distribution	2	1	1	17	-	-	30	-	1
<b>Europe</b>	<b>10</b>	<b>8</b>	<b>4</b>	<b>172</b>	<b>9</b>	<b>6</b>	<b>728</b>	<b>37</b>	<b>18</b>
Americas Materials	13	8	10	239	10	32	1,171	97	80
Americas Products	8	5	3	76	7	9	162	33	65
<b>Americas</b>	<b>21</b>	<b>13</b>	<b>13</b>	<b>315</b>	<b>17</b>	<b>41</b>	<b>1,333</b>	<b>130</b>	<b>145</b>
<b>Unallocated Goodwill</b>									
LH Assets	-	-	1	-	-	2,307	-	-	6,561
CRL	-	-	1	-	-	833	-	-	1,169
<b>Total Group</b>	<b>31</b>	<b>21</b>	<b>19</b>	<b>487</b>	<b>26</b>	<b>3,187</b>	<b>2,061</b>	<b>167</b>	<b>7,893</b>
Adjustments to provisional fair values of prior year acquisitions				-	45	-	(1)	8	-
<b>Total</b>				<b>487</b>	<b>71</b>	<b>3,187</b>	<b>2,060</b>	<b>175</b>	<b>7,893</b>



## 31. Business Combinations - continued

The post-acquisition impact of acquisitions completed during the year on the Group's profit for the financial year was as follows:

	2017	2016	2015
	€m	€m	€m
Revenue	532	101	2,679
(Loss)/profit before tax for the financial year	(2)	1	(7)

The revenue and profit of the Group for the financial year determined in accordance with IFRS as though the acquisitions effected during the year had been at the beginning of the year would have been as follows:

	2017 acquisitions	CRH Group excluding 2017 acquisitions	CRH Group including 2017 acquisitions
	€m	€m	€m
Revenue	1,188	24,688	25,876
Profit before tax for the financial year	38	1,869	1,907

## 32. Non-controlling Interests

The total non-controlling interest at 31 December 2017 is €486 million (2016: €548 million) of which €391 million (2016: €472 million) relates to Republic Cement & Building Materials (RCBM), Inc. and Republic Cement Land & Resources (RCLR), Inc. (formerly Luzon Continental Land Corporation (LCLC)). The non-controlling interests in respect of the Group's other subsidiaries are not considered to be material.

Name	Principal activity	Country of incorporation	Economic ownership interest held by non-controlling interest
Republic Cement & Building Materials, Inc. and Republic Cement Land & Resources, Inc.	Manufacture, development and sale of cement and building materials	Philippines	45%

The following is summarised financial information for RCBM and RCLR prepared in accordance with IFRS 12 *Disclosure of Interests in Other Entities*. This information is before intragroup eliminations with other Group companies.

Summarised financial information	2017	2016
	€m	€m
Profit for the year	14	47
Current assets	159	118
Non-current assets	1,292	1,460
Current liabilities	(140)	(124)
Non-current liabilities	(663)	(690)
Net assets	648	764
Cash flows from operating activities	9	91
Dividends paid to non-controlling interests during the year	-	(1)

CRH holds 40% of the equity share capital in RCBM and RCLR and has an economic interest of 55% of the combined Philippines business. Non-controlling interest relates to another party who holds 60% of the equity share capital in RCBM and RCLR and has an economic interest of 45% of the combined Philippines business. CRH has obtained control (as defined under IFRS 10 *Consolidated Financial Statements*) by virtue of contractual arrangements which give CRH power to direct the relevant non-nationalised activities of the business, in compliance with Philippine law.



## 33. Related Party Transactions

The principal related party relationships requiring disclosure in the Consolidated Financial Statements of the Group under IAS 24 *Related Party Disclosures* pertain to: the existence of subsidiaries, joint ventures and associates; transactions with these entities entered into by the Group; the identification and compensation of key management personnel; and lease arrangements.

### Subsidiaries, joint ventures and associates

The Consolidated Financial Statements include the financial statements of the Company (CRH plc, the ultimate parent) and its subsidiaries, joint ventures and associates as documented in the accounting policies on pages 125 to 134. The Group's principal subsidiaries, joint ventures and associates are disclosed on pages 246 to 251.

Sales to and purchases from associates and joint ventures are as follows:

	Associates			Joint Ventures		
	2017	2016	2015	2017	2016	2015
	€m	€m	€m	€m	€m	€m
Sales	51	56	48	111	88	64
Purchases	400	401	422	55	54	56

Loans extended by the Group to joint ventures and associates (see note 16) are included in financial assets. Amounts receivable from and payable to equity accounted investments (arising from the aforementioned sales and purchases transactions) as at the balance sheet date are included as separate line items in notes 18 and 19 to the Consolidated Financial Statements.

### Terms and conditions of transactions with subsidiaries, joint ventures and associates

In general, the transfer pricing policy implemented by the Group across its subsidiaries is market-based. Sales to and purchases from joint ventures and associates are conducted in the ordinary course of business and on terms equivalent to those that prevail in arms-length transactions. The outstanding balances included in receivables and payables as at the balance sheet date in respect of transactions with joint ventures and associates are unsecured and settlement arises in cash. No guarantees have been either requested or provided in relation to related party receivables and payables. Loans to joint ventures and associates (as disclosed in note 16) are extended on normal commercial terms in the ordinary course of business with interest accruing and, in general, paid to the Group at predetermined intervals.

### Key management personnel

For the purposes of the disclosure requirements of IAS 24, the term "key management personnel" (i.e. those persons having authority and responsibility for planning, directing and controlling the activities of the Company) comprises the Board of Directors which manages the business and affairs of the Company.

Key management remuneration amounted to:

	2017	2016	2015
	€m	€m	€m
Short-term benefits	9	13	10
Post-employment benefits	1	1	1
Share-based payments - calculated in accordance with the principles disclosed in note 8	3	3	2
Total	13	17	13

Other than these compensation entitlements, there were no other transactions involving key management personnel.

### Lease arrangements

CRH has a number of lease arrangements in place with related parties across the Group, which have been negotiated on an arms-length basis at market rates. We do not consider these arrangements to be material either individually or collectively in the context of the 2017, 2016 and 2015 Consolidated Financial Statements.

## 34. Board Approval

The Board of Directors approved and authorised for issue the financial statements on pages 120 to 199 in respect of the year ended 31 December 2017 on 28 February 2018.

## 35. Supplemental Guarantor Information

The following consolidating information presents Condensed Consolidated Balance Sheets as at 31 December 2017 and 2016 and Condensed Consolidated Income Statements and Condensed Consolidated Statements of Comprehensive Income and Condensed Consolidated Statements of Cash Flow for the years ended 31 December 2017, 2016 and 2015 of the Company and CRH America, Inc. as required by Article 3-10(c) of Regulation S-X. This information is prepared in accordance with IFRS with the exception that the subsidiaries are accounted for as investments under the equity method rather than being consolidated. CRH America, Inc. is 100% owned by the Company. The Guarantees of the Guarantor are full and unconditional.

CRH plc also fully and unconditionally guarantees securities issued by CRH America Finance, Inc., which is a 100% owned finance subsidiary of CRH plc.

CRH America, Inc. (the 'Issuer') has the following notes which are fully and unconditionally guaranteed by CRH plc (the 'Guarantor'):

US\$288 million 8.125% Notes due 2018 – listed on the NYSE (i)

US\$400 million 5.750% Notes due 2021 – listed on the NYSE

US\$1,250 million 3.875% Notes due 2025 – listed on the ISE

US\$300 million 6.40% Notes due 2033 – listed on the ISE (ii)

US\$500 million 5.125% Notes due 2045 – listed on the ISE

- (i) Originally issued as a US\$650 million bond in July 2008. Subsequently in May 2017, US\$362.13 million of the issued notes were redeemed by the issuer as part of a liability management exercise.
- (ii) Originally issued as a US\$300 million bond in September 2003. Subsequently in August 2009 and December 2010, US\$87.445 million of the issued notes were acquired by CRH plc as part of liability management exercises undertaken.





## 35. Supplemental Guarantor Information - continued

### Supplemental Condensed Consolidated Balance Sheet as at 31 December 2017

	Guarantor €m	Issuer €m	Non-Guarantor subsidiaries €m	Eliminate and reclassify €m	CRH and subsidiaries €m
<b>ASSETS</b>					
<b>Non-current assets</b>					
Property, plant and equipment	-	-	13,094	-	13,094
Intangible assets	-	-	7,214	-	7,214
Subsidiaries	8,658	458	1,682	(10,798)	-
Investments accounted for using the equity method	-	-	1,248	-	1,248
Advances to subsidiaries and parent undertakings	-	3,627	-	(3,627)	-
Other financial assets	-	-	25	-	25
Other receivables	-	-	156	-	156
Derivative financial instruments	-	-	30	-	30
Deferred income tax assets	-	-	95	-	95
<b>Total non-current assets</b>	<b>8,658</b>	<b>4,085</b>	<b>23,544</b>	<b>(14,425)</b>	<b>21,862</b>
<b>Current assets</b>					
Inventories	-	-	2,715	-	2,715
Trade and other receivables	-	4	3,626	-	3,630
Advances to subsidiaries and parent undertakings	6,141	-	704	(6,845)	-
Current income tax recoverable	-	-	165	-	165
Derivative financial instruments	-	4	30	-	34
Cash and cash equivalents	401	-	1,714	-	2,115
Assets held for sale	-	-	1,112	-	1,112
<b>Total current assets</b>	<b>6,542</b>	<b>8</b>	<b>10,066</b>	<b>(6,845)</b>	<b>9,771</b>
<b>Total assets</b>	<b>15,200</b>	<b>4,093</b>	<b>33,610</b>	<b>(21,270)</b>	<b>31,633</b>
<b>EQUITY</b>					
Capital and reserves attributable to the Company's equity holders	14,491	1,797	9,001	(10,798)	14,491
Non-controlling interests	-	-	486	-	486
<b>Total equity</b>	<b>14,491</b>	<b>1,797</b>	<b>9,487</b>	<b>(10,798)</b>	<b>14,977</b>
<b>LIABILITIES</b>					
<b>Non-current liabilities</b>					
Interest-bearing loans and borrowings	-	2,020	5,640	-	7,660
Derivative financial instruments	-	3	-	-	3
Deferred income tax liabilities	-	-	1,666	-	1,666
Other payables	-	-	226	-	226
Advances from subsidiary and parent undertakings	-	-	3,627	(3,627)	-
Retirement benefit obligations	-	-	377	-	377
Provisions for liabilities	-	-	693	-	693
<b>Total non-current liabilities</b>	<b>-</b>	<b>2,023</b>	<b>12,229</b>	<b>(3,627)</b>	<b>10,625</b>
<b>Current liabilities</b>					
Trade and other payables	3	29	4,502	-	4,534
Advances from subsidiary and parent undertakings	704	-	6,141	(6,845)	-
Current income tax liabilities	-	-	458	-	458
Interest-bearing loans and borrowings	2	244	70	-	316
Derivative financial instruments	-	-	11	-	11
Provisions for liabilities	-	-	371	-	371
Liabilities associated with assets classified as held for sale	-	-	341	-	341
<b>Total current liabilities</b>	<b>709</b>	<b>273</b>	<b>11,894</b>	<b>(6,845)</b>	<b>6,031</b>
<b>Total liabilities</b>	<b>709</b>	<b>2,296</b>	<b>24,123</b>	<b>(10,472)</b>	<b>16,656</b>
<b>Total equity and liabilities</b>	<b>15,200</b>	<b>4,093</b>	<b>33,610</b>	<b>(21,270)</b>	<b>31,633</b>

### Supplemental Condensed Consolidated Balance Sheet as at 31 December 2016

	Guarantor €m	Issuer €m	Non-Guarantor subsidiaries €m	Eliminate and reclassify €m	CRH and subsidiaries €m
<b>ASSETS</b>					
<b>Non-current assets</b>					
Property, plant and equipment	-	-	12,690	-	12,690
Intangible assets	-	-	7,761	-	7,761
Subsidiaries	7,654	375	1,682	(9,711)	-
Investments accounted for using the equity method	-	-	1,299	-	1,299
Advances to subsidiaries and parent undertakings	-	4,508	-	(4,508)	-
Other financial assets	-	-	26	-	26
Other receivables	-	-	212	-	212
Derivative financial instruments	-	13	40	-	53
Deferred income tax assets	-	-	159	-	159
<b>Total non-current assets</b>	<b>7,654</b>	<b>4,896</b>	<b>23,869</b>	<b>(14,219)</b>	<b>22,200</b>
<b>Current assets</b>					
Inventories	-	-	2,939	-	2,939
Trade and other receivables	-	6	3,973	-	3,979
Advances to subsidiaries and parent undertakings	6,546	-	704	(7,250)	-
Current income tax recoverable	-	-	4	-	4
Derivative financial instruments	-	-	23	-	23
Cash and cash equivalents	401	-	2,048	-	2,449
<b>Total current assets</b>	<b>6,947</b>	<b>6</b>	<b>9,691</b>	<b>(7,250)</b>	<b>9,394</b>
<b>Total assets</b>	<b>14,601</b>	<b>4,902</b>	<b>33,560</b>	<b>(21,469)</b>	<b>31,594</b>
<b>EQUITY</b>					
Capital and reserves attributable to the Company's equity holders	13,895	1,922	7,789	(9,711)	13,895
Non-controlling interests	-	-	548	-	548
<b>Total equity</b>	<b>13,895</b>	<b>1,922</b>	<b>8,337</b>	<b>(9,711)</b>	<b>14,443</b>
<b>LIABILITIES</b>					
<b>Non-current liabilities</b>					
Interest-bearing loans and borrowings	-	2,934	4,581	-	7,515
Deferred income tax liabilities	-	-	2,008	-	2,008
Other payables	-	-	461	-	461
Advances from subsidiary and parent undertakings	-	-	4,508	(4,508)	-
Retirement benefit obligations	-	-	591	-	591
Provisions for liabilities	-	-	678	-	678
<b>Total non-current liabilities</b>	<b>-</b>	<b>2,934</b>	<b>12,827</b>	<b>(4,508)</b>	<b>11,253</b>
<b>Current liabilities</b>					
Trade and other payables	-	46	4,769	-	4,815
Advances from subsidiary and parent undertakings	704	-	6,546	(7,250)	-
Current income tax liabilities	-	-	394	-	394
Interest-bearing loans and borrowings	2	-	273	-	275
Derivative financial instruments	-	-	32	-	32
Provisions for liabilities	-	-	382	-	382
<b>Total current liabilities</b>	<b>706</b>	<b>46</b>	<b>12,396</b>	<b>(7,250)</b>	<b>5,898</b>
<b>Total liabilities</b>	<b>706</b>	<b>2,980</b>	<b>25,223</b>	<b>(11,758)</b>	<b>17,151</b>
<b>Total equity and liabilities</b>	<b>14,601</b>	<b>4,902</b>	<b>33,560</b>	<b>(21,469)</b>	<b>31,594</b>



## 35. Supplemental Guarantor Information - continued

### Supplemental Condensed Consolidated Income Statement

	Year ended 31 December 2017				
	Guarantor €m	Issuer €m	Non-Guarantor subsidiaries €m	Eliminate and reclassify €m	CRH and subsidiaries €m
Revenue	-	-	25,220	-	25,220
Cost of sales	-	-	(16,903)	-	(16,903)
Gross profit	-	-	8,317	-	8,317
Operating income/(costs)	22	-	(6,244)	-	(6,222)
Group operating profit	22	-	2,073	-	2,095
Profit on disposals	-	-	56	-	56
Profit before finance costs	22	-	2,129	-	2,151
Finance costs	-	(235)	(308)	242	(301)
Finance income	2	242	10	(242)	12
Other financial expense	-	-	(60)	-	(60)
Share of subsidiaries' profit before tax	1,754	83	-	(1,837)	-
Share of equity accounted investments' profit	65	-	65	(65)	65
Profit before tax from continuing operations	1,843	90	1,836	(1,902)	1,867
Income tax expense	(55)	(29)	(26)	55	(55)
Group profit for the financial year from continuing operations	1,788	61	1,810	(1,847)	1,812
Profit after tax for the financial year from discontinued operations	107	-	107	(107)	107
Group profit for the financial year	1,895	61	1,917	(1,954)	1,919
Profit attributable to:					
Equity holders of the Company					
From continuing operations	1,788	61	1,786	(1,847)	1,788
From discontinued operations	107	-	107	(107)	107
Non-controlling interests					
From continuing operations	-	-	24	-	24
Group profit for the financial year	1,895	61	1,917	(1,954)	1,919

### Supplemental Condensed Consolidated Statement of Comprehensive Income

Group profit for the financial year	1,895	61	1,917	(1,954)	1,919
Other comprehensive income					
Items that may be reclassified to profit or loss in subsequent years:					
Currency translation effects	(1,015)	(186)	(890)	1,015	(1,076)
Gains relating to cash flow hedges	8	-	8	(8)	8
	(1,007)	(186)	(882)	1,007	(1,068)
Items that will not be reclassified to profit or loss in subsequent years:					
Remeasurement of retirement benefit obligations	114	-	114	(114)	114
Tax on items recognised directly within other comprehensive income	(33)	-	(33)	33	(33)
	81	-	81	(81)	81
Total other comprehensive income for the financial year	(926)	(186)	(801)	926	(987)
Total comprehensive income for the financial year	969	(125)	1,116	(1,028)	932
Attributable to:					
Equity holders of the Company	969	(125)	1,153	(1,028)	969
Non-controlling interests	-	-	(37)	-	(37)
Total comprehensive income for the financial year	969	(125)	1,116	(1,028)	932

### Supplemental Condensed Consolidated Income Statement

	Year ended 31 December 2016				Restated <sup>(i)</sup>
	Guarantor €m	Issuer €m	Non-Guarantor subsidiaries €m	Eliminate and reclassify €m	CRH and subsidiaries €m
Revenue	-	-	24,789	-	24,789
Cost of sales	-	-	(16,566)	-	(16,566)
Gross profit	-	-	8,223	-	8,223
Operating income/(costs)	20	-	(6,335)	-	(6,315)
Group operating profit	20	-	1,888	-	1,908
Profit on disposals	-	-	53	-	53
Profit before finance costs	20	-	1,941	-	1,961
Finance costs	-	(266)	(334)	275	(325)
Finance income	2	275	6	(275)	8
Other financial expense	-	-	(66)	-	(66)
Share of subsidiaries' profit before tax	1,529	95	-	(1,624)	-
Share of equity accounted investments' profit	42	-	42	(42)	42
Profit before tax from continuing operations	1,593	104	1,589	(1,666)	1,620
Income tax expense	(431)	(41)	(390)	431	(431)
Group profit for the financial year from continuing operations	1,162	63	1,199	(1,235)	1,189
Profit after tax for the financial year from discontinued operations	81	-	81	(81)	81
Group profit for the financial year	1,243	63	1,280	(1,316)	1,270
Profit attributable to:					
Equity holders of the Company					
From continuing operations	1,162	63	1,172	(1,235)	1,162
From discontinued operations	81	-	81	(81)	81
Non-controlling interests					
From continuing operations	-	-	27	-	27
Group profit for the financial year	1,243	63	1,280	(1,316)	1,270

(i) Restated to show the results of our Americas Distribution segment in discontinued operations.

### Supplemental Condensed Consolidated Statement of Comprehensive Income

Group profit for the financial year	1,243	63	1,280	(1,316)	1,270
Other comprehensive income					
Items that may be reclassified to profit or loss in subsequent years:					
Currency translation effects	(71)	49	(131)	71	(82)
Gains relating to cash flow hedges	14	-	14	(14)	14
	(57)	49	(117)	57	(68)
Items that will not be reclassified to profit or loss in subsequent years:					
Remeasurement of retirement benefit obligations	(61)	-	(61)	61	(61)
Tax on items recognised directly within other comprehensive income	3	-	3	(3)	3
	(58)	-	(58)	58	(58)
Total other comprehensive income for the financial year	(115)	49	(175)	115	(126)
Total comprehensive income for the financial year	1,128	112	1,105	(1,201)	1,144
Attributable to:					
Equity holders of the Company	1,128	112	1,089	(1,201)	1,128
Non-controlling interests	-	-	16	-	16
Total comprehensive income for the financial year	1,128	112	1,105	(1,201)	1,144



## 35. Supplemental Guarantor Information - continued

### Supplemental Condensed Consolidated Income Statement

	Year ended 31 December 2015				Restated <sup>(i)</sup>
	Guarantor €m	Issuer €m	Non-Guarantor subsidiaries €m	Eliminate and reclassify €m	CRH and subsidiaries €m
Revenue	-	-	21,406	-	21,406
Cost of sales	-	-	(14,743)	-	(14,743)
Gross profit	-	-	6,663	-	6,663
Operating income/(costs)	1,473	-	(6,970)	-	(5,497)
Group operating profit/(loss)	1,473	-	(307)	-	1,166
(Loss)/profit on disposals	(7)	-	106	-	99
Profit/(loss) before finance costs	1,466	-	(201)	-	1,265
Finance costs	-	(321)	(315)	333	(303)
Finance income	1	333	7	(333)	8
Other financial expense	-	-	(94)	-	(94)
Share of subsidiaries' (loss)/profit before tax	(596)	62	-	534	-
Share of equity accounted investments' profit	44	-	44	(44)	44
Profit/(loss) before tax from continuing operations	915	74	(559)	490	920
Income tax expense	(276)	(29)	(247)	276	(276)
Group profit/(loss) for the financial year from continuing operations	639	45	(806)	766	644
Profit after tax for the financial year from discontinued operations	85	-	85	(85)	85
Group profit/(loss) for the financial year	724	45	(721)	681	729
<i>Profit/(loss) attributable to:</i>					
Equity holders of the Company					
From continuing operations	639	45	(811)	766	639
From discontinued operations	85	-	85	(85)	85
Non-controlling interests					
From continuing operations	-	-	5	-	5
Group profit/(loss) for the financial year	724	45	(721)	681	729

(i) Restated to show the results of our Americas Distribution segment in discontinued operations.

### Supplemental Condensed Consolidated Statement of Comprehensive Income

Group profit/(loss) for the financial year	724	45	(721)	681	729
<i>Other comprehensive income</i>					
<i>Items that may be reclassified to profit or loss in subsequent years:</i>					
Currency translation effects	643	159	502	(643)	661
Losses relating to cash flow hedges	(2)	-	(2)	2	(2)
	641	159	500	(641)	659
<i>Items that will not be reclassified to profit or loss in subsequent years:</i>					
Remeasurement of retirement benefit obligations	203	-	203	(203)	203
Tax on items recognised directly within other comprehensive income	(30)	-	(30)	30	(30)
	173	-	173	(173)	173
Total other comprehensive income for the financial year	814	159	673	(814)	832
Total comprehensive income for the financial year	1,538	204	(48)	(133)	1,561
<i>Attributable to:</i>					
Equity holders of the Company	1,538	204	(71)	(133)	1,538
Non-controlling interests	-	-	23	-	23
Total comprehensive income for the financial year	1,538	204	(48)	(133)	1,561

### Supplemental Condensed Consolidated Statement of Cash Flow

	Year ended 31 December 2017				
	Guarantor €m	Issuer €m	Non-Guarantor subsidiaries €m	Eliminate and reclassify €m	CRH and subsidiaries €m
<b>Cash flows from operating activities</b>					
Profit before tax from continuing operations	1,843	90	1,836	(1,902)	1,867
Profit before tax from discontinued operations	146	-	146	(146)	146
Profit before tax	1,989	90	1,982	(2,048)	2,013
Finance costs (net)	(2)	(7)	358	-	349
Share of subsidiaries' profit before tax	(1,900)	(83)	-	1,983	-
Share of equity accounted investments' profit	(65)	-	(65)	65	(65)
Profit on disposals	-	-	(59)	-	(59)
Group operating profit	22	-	2,216	-	2,238
Depreciation charge	-	-	1,006	-	1,006
Amortisation of intangible assets	-	-	66	-	66
Share-based payment (income)/expense	(1)	-	66	-	65
Other (primarily pension payments)	-	-	(186)	-	(186)
Net movement on working capital and provisions	-	(11)	(198)	-	(209)
Cash generated from operations	21	(11)	2,970	-	2,980
Interest paid (including finance leases)	-	(236)	(323)	242	(317)
Corporation tax paid	-	(29)	(445)	-	(474)
Net cash inflow/(outflow) from operating activities	21	(276)	2,202	242	2,189
<b>Cash flows from investing activities</b>					
Proceeds from disposals (net of cash disposed and deferred proceeds)	-	-	222	-	222
Interest received	2	242	9	(242)	11
Dividends received from equity accounted investments	-	-	31	-	31
Purchase of property, plant and equipment	-	-	(1,044)	-	(1,044)
Advances from subsidiary and parent undertakings	407	356	-	(763)	-
Acquisition of subsidiaries (net of cash acquired)	-	-	(1,841)	-	(1,841)
Other investments and advances	-	-	(11)	-	(11)
Deferred and contingent acquisition consideration paid	-	-	(53)	-	(53)
Net cash inflow/(outflow) from investing activities	409	598	(2,687)	(1,005)	(2,685)
<b>Cash flows from financing activities</b>					
Proceeds from issue of shares (net)	42	-	-	-	42
Transactions involving non-controlling interests	-	-	(37)	-	(37)
Advances to subsidiary and parent undertakings	-	-	(763)	763	-
Increase in interest-bearing loans, borrowings and finance leases	-	6	1,004	-	1,010
Net cash flow arising from derivative financial instruments	-	11	158	-	169
Premium paid on early debt redemption	-	(18)	-	-	(18)
Treasury/own shares purchased	(3)	-	-	-	(3)
Repayment of interest-bearing loans, borrowings and finance leases	-	(321)	(22)	-	(343)
Dividends paid to equity holders of the Company	(469)	-	-	-	(469)
Dividends paid to non-controlling interests	-	-	(8)	-	(8)
Net cash (outflow)/inflow from financing activities	(430)	(322)	332	763	343
Decrease in cash and cash equivalents	-	-	(153)	-	(153)
<b>Reconciliation of opening to closing cash and cash equivalents</b>					
Cash and cash equivalents at 1 January	401	-	2,048	-	2,449
Translation adjustment	-	-	(161)	-	(161)
Decrease in cash and cash equivalents	-	-	(153)	-	(153)
Cash and cash equivalents at 31 December	401	-	1,734	-	2,135



## 35. Supplemental Guarantor Information - continued

### Supplemental Condensed Consolidated Statement of Cash Flow

	Year ended 31 December 2016				
	Guarantor €m	Issuer €m	Non-Guarantor subsidiaries €m	Eliminate and reclassify €m	CRH and subsidiaries €m
<b>Cash flows from operating activities</b>					
Profit before tax from continuing operations	1,593	104	1,589	(1,666)	1,620
Profit before tax from discontinued operations	121	-	121	(121)	121
<b>Profit before tax</b>	<b>1,714</b>	<b>104</b>	<b>1,710</b>	<b>(1,787)</b>	<b>1,741</b>
Finance costs (net)	(2)	(9)	394	-	383
Share of subsidiaries' profit before tax	(1,650)	(95)	-	1,745	-
Share of equity accounted investments' profit	(42)	-	(42)	42	(42)
Profit on disposals	-	-	(55)	-	(55)
<b>Group operating profit</b>	<b>20</b>	<b>-</b>	<b>2,007</b>	<b>-</b>	<b>2,027</b>
Depreciation charge	-	-	1,009	-	1,009
Amortisation of intangible assets	-	-	71	-	71
Impairment charge	-	-	23	-	23
Share-based payment (income)/expense	(3)	-	49	-	46
Other (primarily pension payments)	-	-	(65)	-	(65)
Net movement on working capital and provisions	-	(1)	57	-	56
<b>Cash generated from operations</b>	<b>17</b>	<b>(1)</b>	<b>3,151</b>	<b>-</b>	<b>3,167</b>
Interest paid (including finance leases)	-	(266)	(355)	275	(346)
Corporation tax paid	-	(41)	(440)	-	(481)
<b>Net cash inflow/(outflow) from operating activities</b>	<b>17</b>	<b>(308)</b>	<b>2,356</b>	<b>275</b>	<b>2,340</b>
<b>Cash flows from investing activities</b>					
Proceeds from disposals (net of cash disposed and deferred proceeds)	-	-	283	-	283
Interest received	2	275	6	(275)	8
Dividends received from equity accounted investments	-	-	40	-	40
Purchase of property, plant and equipment	-	-	(853)	-	(853)
Advances from subsidiary and parent undertakings	287	644	-	(931)	-
Acquisition of subsidiaries (net of cash acquired)	-	-	(149)	-	(149)
Other investments and advances	-	-	(7)	-	(7)
Deferred and contingent acquisition consideration paid	-	-	(57)	-	(57)
<b>Net cash inflow/(outflow) from investing activities</b>	<b>289</b>	<b>919</b>	<b>(737)</b>	<b>(1,206)</b>	<b>(735)</b>
<b>Cash flows from financing activities</b>					
Proceeds from issue of shares (net)	52	-	-	-	52
Advances to subsidiary and parent undertakings	-	-	(931)	931	-
Increase in interest-bearing loans, borrowings and finance leases	-	-	600	-	600
Net cash flow arising from derivative financial instruments	-	25	(30)	-	(5)
Treasury/own shares purchased	(4)	-	-	-	(4)
Repayment of interest-bearing loans, borrowings and finance leases	(9)	(636)	(1,370)	-	(2,015)
Dividends paid to equity holders of the Company	(352)	-	-	-	(352)
Dividends paid to non-controlling interests	-	-	(8)	-	(8)
<b>Net cash (outflow)/inflow from financing activities</b>	<b>(313)</b>	<b>(611)</b>	<b>(1,739)</b>	<b>931</b>	<b>(1,732)</b>
<b>Decrease in cash and cash equivalents</b>	<b>(7)</b>	<b>-</b>	<b>(120)</b>	<b>-</b>	<b>(127)</b>
<b>Reconciliation of opening to closing cash and cash equivalents</b>					
Cash and cash equivalents at 1 January	408	-	2,110	-	2,518
Translation adjustment	-	-	58	-	58
Decrease in cash and cash equivalents	(7)	-	(120)	-	(127)
<b>Cash and cash equivalents at 31 December</b>	<b>401</b>	<b>-</b>	<b>2,048</b>	<b>-</b>	<b>2,449</b>

### Supplemental Condensed Consolidated Statement of Cash Flow

	Year ended 31 December 2015				
	Guarantor €m	Issuer €m	Non-Guarantor subsidiaries €m	Eliminate and reclassify €m	CRH and subsidiaries €m
<b>Cash flows from operating activities</b>					
Profit/(loss) before tax from continuing operations	915	74	(559)	490	920
Profit before tax from discontinued operations	113	-	113	(113)	113
<b>Profit/(loss) before tax</b>	<b>1,028</b>	<b>74</b>	<b>(446)</b>	<b>377</b>	<b>1,033</b>
Finance costs (net)	(1)	(12)	402	-	389
Share of subsidiaries' loss/(profit) before tax	483	(62)	-	(421)	-
Share of equity accounted investments' profit	(44)	-	(44)	44	(44)
Loss/(profit) on disposals	7	-	(108)	-	(101)
<b>Group operating profit/(loss)</b>	<b>1,473</b>	<b>-</b>	<b>(196)</b>	<b>-</b>	<b>1,277</b>
Depreciation charge	-	-	843	-	843
Amortisation of intangible assets	-	-	55	-	55
Impairment charge	-	-	44	-	44
Share-based payment (income)/expense	(2)	-	29	-	27
Other (primarily pension payments)	-	-	(47)	-	(47)
Amounts due from subsidiary undertakings	(1,460)	-	1,460	-	-
Net movement on working capital and provisions	-	(9)	594	-	585
<b>Cash generated from operations</b>	<b>11</b>	<b>(9)</b>	<b>2,782</b>	<b>-</b>	<b>2,784</b>
Interest paid (including finance leases)	-	(263)	(352)	333	(302)
Corporation tax paid	-	(29)	(206)	-	(235)
<b>Net cash inflow/(outflow) from operating activities</b>	<b>11</b>	<b>(321)</b>	<b>2,224</b>	<b>333</b>	<b>2,247</b>
<b>Cash flows from investing activities</b>					
Proceeds from disposals (net of cash disposed and deferred proceeds)	-	-	889	-	889
Interest received	1	333	7	(333)	8
Dividends received from equity accounted investments	-	-	53	-	53
Purchase of property, plant and equipment	-	-	(882)	-	(882)
Advances from subsidiary and parent undertakings	(699)	(632)	-	1,331	-
Acquisition of subsidiaries (net of cash acquired)	-	-	(7,296)	-	(7,296)
Other investments and advances	-	-	(19)	-	(19)
Deferred and contingent acquisition consideration paid	-	-	(59)	-	(59)
<b>Net cash outflow from investing activities</b>	<b>(698)</b>	<b>(299)</b>	<b>(7,307)</b>	<b>998</b>	<b>(7,306)</b>
<b>Cash flows from financing activities</b>					
Proceeds from issue of shares (net)	-	-	1,593	-	1,593
Proceeds from exercise of share options	57	-	-	-	57
Advances to subsidiary and parent undertakings	-	-	1,331	(1,331)	-
Increase in interest-bearing loans, borrowings and finance leases	9	1,584	4,040	-	5,633
Net cash flow arising from derivative financial instruments	-	15	32	-	47
Premium paid on early debt redemption	-	(38)	-	-	(38)
Treasury/own shares purchased	(3)	-	-	-	(3)
Repayment of interest-bearing loans, borrowings and finance leases	-	(968)	(1,776)	-	(2,744)
Dividends paid to equity holders of the Company	(379)	-	-	-	(379)
Dividends paid to non-controlling interests	-	-	(4)	-	(4)
<b>Net cash (outflow)/inflow from financing activities</b>	<b>(316)</b>	<b>593</b>	<b>5,216</b>	<b>(1,331)</b>	<b>4,162</b>
<b>(Decrease)/increase in cash and cash equivalents</b>	<b>(1,003)</b>	<b>(27)</b>	<b>133</b>	<b>-</b>	<b>(897)</b>
<b>Reconciliation of opening to closing cash and cash equivalents</b>					
Cash and cash equivalents at 1 January	1,411	25	1,859	-	3,295
Translation adjustment	-	2	118	-	120
(Decrease)/increase in cash and cash equivalents	(1,003)	(27)	133	-	(897)
<b>Cash and cash equivalents at 31 December</b>	<b>408</b>	<b>-</b>	<b>2,110</b>	<b>-</b>	<b>2,518</b>



## Company Balance Sheet

as at 31 December 2017

Notes	2017 €m	2016 €m
	<b>Fixed assets</b>	
3	Financial assets	2,882 2,818
	<b>Current assets</b>	
4	Debtors	6,141 6,546
	Cash at bank and in hand	401 401
	<b>Total current assets</b>	<b>6,542 6,947</b>
	<b>Creditors (amounts falling due within one year)</b>	
5	Trade and other creditors	707 704
	Bank loans and overdrafts	2 2
	<b>Total current liabilities</b>	<b>709 706</b>
	<b>Net current assets</b>	<b>5,833 6,241</b>
	<b>Net assets</b>	<b>8,715 9,059</b>
	<b>Capital and reserves</b>	
8	Called-up share capital	286 284
8	Preference share capital	1 1
	Share premium account	6,421 6,241
8	Treasury Shares and own shares	(15) (14)
9	Revaluation reserve	42 42
	Other reserves	275 276
9	Profit and loss account <sup>(i)</sup>	1,705 2,229
	<b>Total equity</b>	<b>8,715 9,059</b>

(i) In accordance with section 304 of the Companies Act 2014, the profit for the financial year of the Company amounted to €24 million (2016: €22 million).

N. Hartery, A. Manifold, Directors

## Company Statement of Changes in Equity

for the financial year ended 31 December 2017

	Issued share capital €m	Share premium account €m	Treasury Shares/ own shares €m	Revaluation reserve €m	Other reserves €m	Profit and loss account €m	Total equity €m
<b>At 1 January 2017</b>	285	6,241	(14)	42	276	2,229	9,059
Profit for the financial year	-	-	-	-	-	24	24
Total comprehensive income	-	-	-	-	-	24	24
Issue of share capital (net of expenses)	1	118	-	-	-	-	119
Share-based payment expense	-	-	-	-	62	-	62
Treasury/own shares reissued	-	-	2	-	-	(2)	-
Shares acquired by Employee Benefit Trust (own shares)	-	-	(3)	-	-	-	(3)
Shares distributed under the Performance Share Plan Awards	1	62	-	-	(63)	-	-
Dividends (including shares issued in lieu of dividends)	-	-	-	-	-	(546)	(546)
<b>At 31 December 2017</b>	<b>287</b>	<b>6,421</b>	<b>(15)</b>	<b>42</b>	<b>275</b>	<b>1,705</b>	<b>8,715</b>
<b>At 1 January 2016</b>	282	6,025	(28)	42	230	2,744	9,295
Profit for the financial year	-	-	-	-	-	22	22
Total comprehensive income	-	-	-	-	-	22	22
Issue of share capital (net of expenses)	3	216	-	-	-	-	219
Share-based payment expense	-	-	-	-	46	-	46
Treasury/own shares reissued	-	-	18	-	-	(18)	-
Shares acquired by Employee Benefit Trust (own shares)	-	-	(4)	-	-	-	(4)
Dividends (including shares issued in lieu of dividends)	-	-	-	-	-	(519)	(519)
<b>At 31 December 2016</b>	<b>285</b>	<b>6,241</b>	<b>(14)</b>	<b>42</b>	<b>276</b>	<b>2,229</b>	<b>9,059</b>



# Notes to the Company Balance Sheet

## 1. Basis of Preparation

The financial statements have been prepared on a going concern basis under the historical cost convention in accordance with the Companies Act 2014 and GAAP in the Republic of Ireland (Financial Reporting Standard 101 *Reduced Disclosure Framework* (FRS 101)). Note 2 below describes the principal accounting policies under FRS 101, which have been applied consistently.

In these financial statements the Company has applied the exemptions available under FRS 101 in respect of the following disclosures:

- Statement of Cash Flows;
- Disclosures in respect of transactions with wholly-owned subsidiaries;
- Certain requirements of IAS 1 *Presentation of Financial Statements*;
- Disclosures required by IFRS 7 *Financial Instrument Disclosures*;
- Disclosures required by IFRS 13 *Fair Value Measurement*; and
- The effects of new but not yet effective IFRSs

The Company's investment in shares in its subsidiaries was revalued at 31 December 1980 to reflect the surplus on revaluation of certain property, plant and equipment (land and buildings) of subsidiaries. The original historical cost of the shares equated to approximately €9 million. The analysis of the closing balance between amounts carried at valuation and at cost is as follows:

	2017 €m	2016 €m
At valuation 31 December 1980	47	47
At cost post 31 December 1980	2,516	2,516
<b>Total</b>	<b>2,563</b>	<b>2,563</b>

Deemed cost in respect of the investment in these subsidiaries amounted to €400 million at the date of transition to FRS 101.

## 2. Accounting Policies

### Key accounting policies which involve estimates, assumptions and judgements

Preparation of the financial statements requires management to make significant judgements and estimates. The items in the financial statements where these judgements and estimates have been made include:

#### Financial assets

Investments in subsidiaries, are stated at cost less any accumulated impairment and are reviewed for impairment if there are indications that the carrying value may not be recoverable. Impairment assessment is considered as part of the Group's overall impairment assessment.

#### Loans receivable and payable

Intercompany loans receivable and payable are initially recognised at fair value. These are subsequently measured at amortised cost, less any provision for impairment.

### Other significant accounting policies

#### Operating income and expense

Operating income and expense arises from the Company's principal activities as a holding and financing company for the Group and are accounted for on an accruals basis.

#### Foreign currencies

The functional and presentation currency of the Company is euro. Transactions in foreign currencies are translated at the rates of exchange ruling at the transaction date. Monetary assets and liabilities denominated in foreign currencies are translated into euro at the rates of exchange ruling at the balance sheet date, with a corresponding charge or credit to the profit and loss account.

### Share issue expenses and share premium account

Costs of share issues are written off against the premium arising on issues of share capital.

#### Share-based payments

The Company has applied the requirements of Section 8 of FRS 101.

The accounting policy applicable to share-based payments is addressed in detail on page 131 of the Consolidated Financial Statements.

### Treasury Shares and own shares

#### Treasury Shares

Own equity instruments (i.e. Ordinary Shares) acquired by the Company are deducted from equity and presented on the face of the Company Balance Sheet. No gain or loss is recognised in profit or loss on the purchase, sale, issue or cancellation of the Company's Ordinary Shares.

#### Own shares

Ordinary Shares purchased by the Employee Benefit Trust on behalf of the Company under the terms of the Performance Share Plan are recorded as a deduction from equity on the face of the Company Balance Sheet.

#### Dividends

Dividends on Ordinary Shares are recognised as a liability in the Company's Financial Statements in the period in which they are declared by the Company.

#### Dividend income

Dividend income is recognised when the right to receive payment is established.



## Notes to the Company Balance Sheet - continued

### 3. Financial Assets

The Company's investment in its subsidiaries is as follows:

	Shares €m	Other €m	Total €m
<b>At 1 January 2017 at cost</b>	<b>2,563</b>	<b>255</b>	<b>2,818</b>
Capital contribution in respect of share-based payments	-	64	64
<b>At 31 December 2017 at cost</b>	<b>2,563</b>	<b>319</b>	<b>2,882</b>
<i>The equivalent disclosure for the prior year is as follows:</i>			
<b>At 1 January 2016 at cost</b>	<b>1,993</b>	<b>212</b>	<b>2,205</b>
Capital contribution in respect of share-based payments	-	43	43
Additions	570	-	570
<b>At 31 December 2016 at cost</b>	<b>2,563</b>	<b>255</b>	<b>2,818</b>

Additions in 2016 relate to the Company's investment in its subsidiary CRH Finance DAC.

The Company's principal subsidiaries, joint ventures and associates are disclosed on pages 246 to 251.

Pursuant to Section 348(4) of the Companies Act 2014, a full list of subsidiaries, joint ventures and associated undertakings will be annexed to the Company's annual return to be filed in the Companies Registration Office in Ireland.

### 4. Debtors

	2017 €m	2016 €m
Amounts owed by subsidiary undertakings	6,141	6,546

Amounts owed by subsidiary undertakings are repayable on demand.

### 5. Creditors

	2017 €m	2016 €m
<i>Amounts falling due within one year</i>		
Amounts owed to subsidiary undertakings	704	704
Accruals and other payables	3	-
	<b>707</b>	<b>704</b>

Amounts owed to subsidiary undertakings are repayable on demand.

### 6. Auditor's Remuneration (Memorandum Disclosure)

In accordance with Section 322 of the Companies Act 2014, the fees paid in 2017 to the statutory auditor for work engaged by the Parent Company comprised audit fees of €20,000 (2016: €20,000) and other assurance services of €nil (2016: €nil).

### 7. Dividends Proposed (Memorandum Disclosure)

Details in respect of dividends proposed of €409 million (2016: €385 million) and dividends paid during the year are presented in the dividends note (note 12) on page 150 of the notes to the Consolidated Financial Statements.

### 8. Called-up Share Capital

Details in respect of called-up share capital, preference share capital, Treasury Shares and own shares are presented in the share capital and reserves note (note 30) on pages 182 to 184 of the notes to the Consolidated Financial Statements.

### 9. Reserves

#### Revaluation reserve

The Company's revaluation reserve arose on the revaluation of certain investments prior to the transition to FRS 101.

In accordance with Section 304 of the Companies Act 2014, the Company is availing of the exemption from presenting its individual

profit and loss account to the AGM and from filing it with the Registrar of Companies. The profit for the financial year dealt with in the Company Financial Statements amounted to €24 million (2016: €22 million).

### 10. Share-based Payments

The total expense of €65 million (2016: €46 million) reflected in the Consolidated Financial Statements attributable to employee share options and the performance share awards has been included as a capital contribution in financial assets (note 3) in addition to any payments to/from subsidiaries.

### 11. Section 357 Guarantees

Any Irish registered wholly-owned subsidiary of the Company may avail of the exemption from filing its statutory financial statements for the year ended 31 December 2017 as permitted by Section 357 of the Companies Act 2014 and if an Irish registered wholly-owned subsidiary of the Company elects to avail of this exemption, there will be in force an irrevocable guarantee

from the Company in respect of all commitments entered into by such wholly-owned subsidiary, including amounts shown as liabilities (within the meaning of Section 357 (1) (b) of the Companies Act 2014) in such wholly-owned subsidiary's statutory financial statements for the year ended 31 December 2017.

Details in relation to other guarantees provided by the Company are provided in the interest-bearing loans and borrowings note (note 24) on page 169 of the notes to the Consolidated Financial Statements.

### 12. Directors' Emoluments

Directors' emoluments and interests are presented in the Directors' Remuneration Report on pages 72 to 95 of this Annual Report and Form 20-F.

### 13. Board Approval

The Board of Directors approved and authorised for issue the Company Financial Statements on pages 200 to 205 in respect of the year ended 31 December 2017 on 28 February 2018.





## Supplementary 20-F Disclosures



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Readymixed concrete trucks assembled at a Yatai Building Materials depot in Changchun, China. CRH has a 26% stake in the company which is a market leader in cement in Northeast China with a capacity of 32 million tonnes and operations in the three provinces.





## Selected Financial Data

The Consolidated Financial Statements of CRH plc have been prepared in accordance with IFRS as adopted by the International Accounting Standards Board.

Selected financial data is presented below for the five years ended on 31 December 2017. For the three years ended 31 December 2017, the selected financial data is qualified in its entirety by reference to, and should be read in conjunction

with, the audited Consolidated Financial Statements, the related Notes and the Business Performance section included elsewhere in this Annual Report and Form 20-F.

Year ended 31 December (amounts in millions, except per share data and ratios)

	2017	2016 (i)	2015 (i)	2014 (i)	2013 (i) (ii)
	€m	€m	€m	€m	€m
<b>Consolidated Income Statement Data</b>					
Revenue	25,220	24,789	21,406	17,136	16,367
Group operating profit	2,095	1,908	1,166	834	33
Profit/(loss) attributable to equity holders of the Company	1,788	1,162	639	520	(344)
Basic earnings/(loss) per Ordinary Share	214.0c	140.4c	78.7c	70.4c	(47.2c)
Diluted earnings/(loss) per Ordinary Share	212.7c	139.4c	78.3c	70.4c	(47.2c)
Dividends paid during calendar year per Ordinary Share	65.4c	62.8c	62.5c	62.5c	62.5c
Average number of Ordinary Shares outstanding (iii)	835.6	827.8	812.3	737.6	729.2
Ratio of earnings to fixed charges (times) (iv)	4.5	3.9	2.8	2.4	0.6 (v)

All data relates to continuing operations

### Consolidated Balance Sheet Data

Total assets	31,633	31,594	32,007	22,017	20,429
Net assets (vi)	14,977	14,443	13,544	10,198	9,686
Ordinary shareholders' equity	14,490	13,894	13,014	10,176	9,661
Equity share capital	286	284	281	253	251
Number of Ordinary Shares (iii)	839.0	832.8	823.9	744.5	739.2
Number of Treasury Shares and own shares (iii)	0.4	0.4	1.3	3.8	6.0
Number of Ordinary Shares net of Treasury Shares and own shares (iii)	838.6	832.4	822.6	740.7	733.2

(i) Prior year comparative income statement data has been restated to show the results of our Americas Distribution segment in discontinued operations. See note 2 to the Consolidated Financial Statements for further details.

(ii) Group operating profit includes asset impairment charges of €650 million in 2013, with an additional €105 million impairment charge included in loss attributable to equity holders of the Company in respect of equity accounted investments.

(iii) All share numbers are shown in millions of shares.

(iv) For the purposes of calculating the ratio of earnings to fixed charges, in accordance with Item 503 of Regulation S-K, earnings have been calculated by adding: profit/(loss) before tax from continuing operations adjusted to exclude the Group's share of equity accounted investments' result after tax, fixed charges and dividends received from equity accounted investments; and the fixed charges were calculated by adding interest expensed and capitalised, amortised premiums, discounts and capitalised expenses related to indebtedness, an estimate of the interest within rental expense and preference security dividend requirements of consolidated subsidiaries.

(v) The amount of the deficiency in 2013 was US\$183 million.

(vi) Net assets is calculated as the sum of total assets less total liabilities.

## Exchange Rates

In this Annual Report and Form 20-F, references to "US\$", "US Dollars" or "US cents" are to the United States currency, references to "euro", "euro cent", "cent", "c" or "€" are to the euro currency and "Stg£" or "Pound Sterling" are to the currency of the United Kingdom of Great Britain and Northern Ireland (UK). Other currencies referred to in this Annual Report and Form 20-F include Polish Zloty (PLN), Swiss Franc (CHF), Canadian Dollar (CAD), Chinese Renminbi (RMB), Indian Rupee (INR), Ukrainian Hryvnia (UAH), Philippine Peso (PHP), Romanian Leu (RON) and Serbian Dinar (RSD).

For the convenience of the reader, this Annual Report and Form 20-F contains translations of certain euro amounts into US Dollars at specified rates. These translations should not be construed as representations that the euro amounts actually represent such US Dollar amounts or could be converted into US Dollars at the rate indicated.

The table below sets forth, for the periods and dates indicated, the average, high, low and end-of-period exchange rates in US Dollars per €1 (to the nearest cent) using the Federal Reserve Bank of New York Noon Buying Rate (the 'FRB Noon Buying Rate').

These rates may vary slightly from the rates used for translating foreign currencies into euro in the preparation of the Consolidated Financial Statements (see page 134).

For a discussion on the effects of exchange rate fluctuations on the financial condition and results of the operations of the Group, see the Business Performance section beginning on page 22.

Where referenced in the Supplementary 20-F Disclosures and Shareholder Information sections, information is provided at the latest practicable date, 16 February 2018.

### euro/US Dollar exchange rate

Years ended 31 December	Period End	Average Rate (i)	High	Low
2013	1.38	1.33	1.38	1.28
2014	1.21	1.32	1.39	1.21
2015	1.09	1.10	1.20	1.05
2016	1.06	1.10	1.15	1.04
2017	1.20	1.14	1.20	1.04
2018 (through 16 February 2018)	1.24	1.23	1.25	1.19

Months ended	Period End	Average Rate (i)	High	Low
September 2017	1.18	1.19	1.20	1.17
October 2017	1.16	1.18	1.18	1.16
November 2017	1.19	1.17	1.19	1.16
December 2017	1.20	1.18	1.20	1.17
January 2018	1.24	1.22	1.25	1.19
February 2018 (through 16 February 2018)	1.24	1.24	1.25	1.22

(i) The average of the euro/US Dollar exchange rate on the last day of each month during the period or in the case of monthly averages, the average of all days in the month, in each case using the FRB Noon Buying Rate.

The FRB Noon Buying Rate on 31 December 2017 was €1 = US\$1.2022 and on 16 February 2018 was €1 = US\$1.2442.



## Non-GAAP Performance Measures

CRH uses a number of non-GAAP performance measures to monitor financial performance. These measures are referred to throughout the discussion of our reported financial position and operating performance and are measures which are regularly reviewed by CRH management.

These performance measures may not be uniformly defined by all companies and accordingly they may not be directly comparable with similarly titled measures and disclosures by other companies. Certain information presented is derived from amounts calculated in accordance

with IFRS but is not itself an expressly permitted GAAP measure. The non-GAAP performance measures as summarised below should not be viewed in isolation or as an alternative to the equivalent GAAP measure.

### Reconciliation of Revenue, EBITDA (as defined)\* and Operating Profit by segment

	Year ended 31 December											
	Revenue			Group EBITDA (as defined)*			Depreciation, amortisation and impairment			Group operating profit (i)		
	2017	2016	2015	2017	2016	2015	2017	2016	2015	2017	2016	2015
	€m	€m	€m	€m	€m	€m	€m	€m	€m	€m	€m	€m
<i>Continuing operations</i>												
Europe Heavyside	6,902	6,945	4,813	839	781	424	361	395	304	478	386	120
Europe Lightside	1,440	1,392	1,404	143	137	136	41	45	46	102	92	90
Europe Distribution	4,145	4,066	4,158	269	206	171	62	76	77	207	130	94
<b>Europe</b>	<b>12,487</b>	<b>12,403</b>	<b>10,375</b>	<b>1,251</b>	<b>1,124</b>	<b>731</b>	<b>464</b>	<b>516</b>	<b>427</b>	<b>787</b>	<b>608</b>	<b>304</b>
<i>Americas Materials</i>	<i>7,970</i>	<i>7,598</i>	<i>7,018</i>	<i>1,270</i>	<i>1,204</i>	<i>955</i>	<i>412</i>	<i>386</i>	<i>335</i>	<i>858</i>	<i>818</i>	<i>620</i>
<i>Americas Products</i>	<i>4,327</i>	<i>4,280</i>	<i>3,862</i>	<i>573</i>	<i>543</i>	<i>391</i>	<i>138</i>	<i>132</i>	<i>142</i>	<i>435</i>	<i>411</i>	<i>249</i>
<b>Americas</b>	<b>12,297</b>	<b>11,878</b>	<b>10,880</b>	<b>1,843</b>	<b>1,747</b>	<b>1,346</b>	<b>550</b>	<b>518</b>	<b>477</b>	<b>1,293</b>	<b>1,229</b>	<b>869</b>
<i>Asia</i>	<i>436</i>	<i>508</i>	<i>151</i>	<i>52</i>	<i>109</i>	<i>2</i>	<i>37</i>	<i>38</i>	<i>9</i>	<i>15</i>	<i>71</i>	<i>(7)</i>
<b>Total Group from continuing operations</b>	<b>25,220</b>	<b>24,789</b>	<b>21,406</b>	<b>3,146</b>	<b>2,980</b>	<b>2,079</b>	<b>1,051</b>	<b>1,072</b>	<b>913</b>	<b>2,095</b>	<b>1,908</b>	<b>1,166</b>
<i>Discontinued operations</i>												
Americas Distribution	2,343	2,315	2,229	164	150	140	21	31	29	143	119	111
<b>Total Group</b>	<b>27,563</b>	<b>27,104</b>	<b>23,635</b>	<b>3,310</b>	<b>3,130</b>	<b>2,219</b>	<b>1,072</b>	<b>1,103</b>	<b>942</b>	<b>2,238</b>	<b>2,027</b>	<b>1,277</b>
<b>Group operating profit from continuing operations</b>										<b>2,095</b>	<b>1,908</b>	<b>1,166</b>
Profit on disposals										56	53	99
Finance costs less income										(289)	(317)	(295)
Other financial expense										(60)	(66)	(94)
Share of equity accounted investments' profit										65	42	44
<b>Profit before tax from continuing operations</b>										<b>1,867</b>	<b>1,620</b>	<b>920</b>
Income tax expense										(55)	(431)	(276)
<b>Group profit for the financial year from continuing operations</b>										<b>1,812</b>	<b>1,189</b>	<b>644</b>
Profit after tax for the financial year from discontinued operations										107	81	85
<b>Group profit for the financial year</b>										<b>1,919</b>	<b>1,270</b>	<b>729</b>

(i) Throughout this document, Group operating profit is reported as shown in the Consolidated Income Statement and excludes profit on disposals.

### Return on Net Assets

	2017 €m	2016 €m	2015 €m
Group operating profit from continuing operations	2,095	1,908	1,166
Group operating profit from discontinued operations	143	119	111
<b>Total Group operating profit (numerator for RONA computation)</b>	<b>2,238</b>	<b>2,027</b>	<b>1,277</b>
<i>Current year</i>			
Segment assets (i)	26,809	27,581	27,881
Segment liabilities (i)	(6,201)	(6,927)	(6,794)
<b>Group segment net assets</b>	<b>20,608</b>	<b>20,654</b>	<b>21,087</b>
Assets held for sale	1,112	-	-
Liabilities associated with assets classified as held for sale	(341)	-	-
<b>Group net assets (including net assets held for sale)</b>	<b>21,379</b>	<b>20,654</b>	<b>21,087</b>
<i>Prior year</i>			
Segment assets (i)	27,581	27,881	16,584
Segment liabilities (i)	(6,927)	(6,794)	(4,258)
<b>Group segment net assets</b>	<b>20,654</b>	<b>21,087</b>	<b>12,326</b>
Average net assets including net assets held for sale (denominator for RONA computation)	21,017	20,871	16,707
<b>RONA</b>	<b>10.6%</b>	<b>9.7%</b>	<b>7.6%</b>

### Reconciliation of Segment Assets and Liabilities to Group Assets and Liabilities

	2017 €m	2016 €m	2015 €m	2014 €m
<b>Assets</b>				
Segment assets (i)	26,809	27,581	27,881	16,584
<i>Reconciliation to total assets as reported in the Consolidated Balance Sheet:</i>				
Investments accounted for using the equity method	1,248	1,299	1,317	1,329
Other financial assets	25	26	28	23
Derivative financial instruments (current and non-current)	64	76	109	102
Income tax assets (current and deferred)	260	163	154	186
Cash and cash equivalents	2,115	2,449	2,518	3,262
Assets held for sale	1,112	-	-	531
<b>Total assets as reported in the Consolidated Balance Sheet</b>	<b>31,633</b>	<b>31,594</b>	<b>32,007</b>	<b>22,017</b>
<b>Liabilities</b>				
Segment liabilities (i)	6,201	6,927	6,794	4,258
<i>Reconciliation to total liabilities as reported in the Consolidated Balance Sheet:</i>				
Interest-bearing loans and borrowings (current and non-current)	7,976	7,790	9,221	5,866
Derivative financial instruments (current and non-current)	14	32	24	23
Income tax liabilities (current and deferred)	2,124	2,402	2,424	1,459
Liabilities associated with assets classified as held for sale	341	-	-	213
<b>Total liabilities as reported in the Consolidated Balance Sheet</b>	<b>16,656</b>	<b>17,151</b>	<b>18,463</b>	<b>11,819</b>

(i) Segment assets and liabilities as disclosed in note 1 to the Consolidated Financial Statements.



## Non-GAAP Performance Measures - continued

### Calculation of EBITDA (as defined)\* Net Interest Cover

	2017 €m	2016 €m	2015 €m
<i>Interest</i>			
Finance costs (i)	301	325	303
Finance income (i)	(12)	(8)	(8)
<b>Net interest</b>	<b>289</b>	<b>317</b>	<b>295</b>
EBITDA (as defined)* from continuing operations	3,146	2,980	2,079
		<b>Times</b>	
EBITDA (as defined)* net interest cover (EBITDA (as defined)* divided by net interest)	10.9	9.4	7.0

(i) These items appear on the Consolidated Income Statement on page 120.

### Calculation of Net Debt/EBITDA (as defined)\*

	2017 €m	2016 €m	2015 €m
<i>Net Debt</i>			
Cash and cash equivalents (i)	2,115	2,449	2,518
Interest-bearing loans and borrowings (i)	(7,976)	(7,790)	(9,221)
Derivative financial instruments (net) (i)	50	44	85
<b>Group net debt excluding net debt reclassified as held for sale</b>	<b>(5,811)</b>	<b>(5,297)</b>	<b>(6,618)</b>
Cash at bank and in hand reclassified as held for sale (i)	20	-	-
Interest-bearing loans and borrowings reclassified as held for sale (i)	(5)	-	-
<b>Group net debt</b>	<b>(5,796)</b>	<b>(5,297)</b>	<b>(6,618)</b>
EBITDA (as defined)* from continuing operations	3,146	2,980	2,079
EBITDA (as defined)* from discontinued operations	164	150	140
<b>Total Group EBITDA (as defined)*</b>	<b>3,310</b>	<b>3,130</b>	<b>2,219</b>
		<b>Times</b>	
Net debt divided by EBITDA (as defined)*	1.8	1.7	3.0

(i) These items appear in notes 21 to 25 to the Consolidated Financial Statements.

### Adjusted Basic Earnings per Ordinary Share

	2017 €m
Numerator for basic and diluted earnings per Ordinary Share (i)	1,895
One-off Swiss pension past service credit (net of tax) (ii)	(59)
One-off deferred tax credit (including credit relating to discontinued operations)	(447)
<b>Numerator for adjusted basic EPS excluding one-off gains per Ordinary Share from continuing and discontinued operations</b>	<b>1,389</b>
Average shares (i)	835.6
Adjusted basic earnings per Ordinary Share	166.2c
Dividend declared for the year	68.0c
<b>Dividend cover (adjusted basic earnings per share/dividend declared per share)</b>	<b>2.4x</b>

(i) These items appear in note 13 to the Consolidated Financial Statements.

(ii) The one-off Swiss pension past service credit was €81 million before a tax charge of €22 million.

**EBITDA (as defined).** EBITDA is defined as earnings before interest, taxes, depreciation, amortisation, asset impairment charges, profit on disposals and the Group's share of equity accounted investments' profit after tax and is quoted by management in conjunction with other GAAP and non-GAAP financial measures, to aid investors in their analysis of the performance of the Group and to assist investors in the comparison of the Group's performance with that of other companies. EBITDA (as defined)\* and operating profit by segment are monitored by management in order to allocate resources between segments and to assess performance. Given that net finance costs and income tax are managed on a centralised basis, these items are not allocated between operating segments for the purpose of the information presented to the Chief Operating Decision Maker.

**Net Debt.** Net debt is used by management as it gives a more complete picture of the Group's current debt situation than total interest-bearing loans and borrowings. Net debt is provided to enable investors to see the economic effect of gross debt, related hedges and cash and cash equivalents in total. Net debt is a non-GAAP measure and comprises current and non-current interest-bearing loans and borrowings, cash and cash equivalents and current and non-current derivative financial instruments.

**Net debt/EBITDA (as defined)\*** is monitored by management and is useful to investors in assessing the Company's level of indebtedness relative to its profitability and cash-generating capabilities. It is the ratio of net debt to EBITDA (as defined)\* and is calculated on page 212.

**EBITDA (as defined)\* Net Interest Cover.** EBITDA (as defined)\* net interest cover is used by management as a measure which matches the earnings and cash generated by the business to the underlying funding costs. EBITDA (as defined)\* net interest cover is presented to provide investors with a greater understanding of the impact of CRH's debt and financing arrangements. It is the ratio of EBITDA (as defined)\* to net interest and is calculated on page 212. The definitions and calculations used as a metric in lender covenant agreements include certain specified adjustments to the amounts included in the Consolidated Financial Statements. The ratios as calculated on the basis of the definitions in those covenants are disclosed in note 24 to the Consolidated Financial Statements.

**RONA.** Return on Net Assets is a key internal pre-tax measure of operating performance throughout the CRH Group and can be used by management and investors to measure the relative use of assets between CRH's business segments and to compare to other businesses. The metric measures management's ability to generate profits

from the net assets required to support that business, focusing on both profit maximisation and the maintenance of an efficient asset base; it encourages effective fixed asset maintenance programmes, good decisions regarding expenditure on property, plant and equipment and the timely disposal of surplus assets, and also supports the effective management of the Group's working capital base. RONA is calculated by expressing total Group operating profit as a percentage of average net assets. Net assets comprise total assets by segment (including assets held for sale) less total liabilities by segment (including liabilities associated with assets classified as held for sale) as shown on page 211 and detailed in note 1 to the Consolidated Financial Statements, and exclude equity accounted investments and other financial assets, net debt (as previously defined) and tax assets & liabilities. The average net assets for the year is the simple average of the opening and closing balance sheet figures.

**Organic Revenue, Organic Operating Profit and Organic EBITDA (as defined)\*.** CRH pursues a strategy of growth through acquisitions and investments, with €1,905 million spent on acquisitions and investments in 2017 (2016: €213 million). Acquisitions completed in 2016 and 2017 contributed incremental sales revenue of €596 million, operating profit of €14 million and EBITDA (as defined)\* of €60 million in 2017. Proceeds from divestments and non-current asset disposals amounted to €222 million (net of cash disposed and deferred proceeds) (2016: €283 million). The sales impact of divested activities in 2017 was a negative €204 million and the disposal impact at an operating profit and EBITDA (as defined)\* level was a negative €14 million and €21 million respectively.

The euro strengthened against most major currencies during 2017, particularly towards the end of the year resulting in the average euro/ Pound Sterling rate weakening from 0.8195 in 2016 to 0.8767 in 2017 and the US Dollar weakening from an average 1.1069 in 2016 to 1.1297 in 2017. Overall currency movements resulted in an unfavourable net foreign currency translation impact on our results as shown on the table on page 26.

Because of the impact of acquisitions, divestments, exchange translation and other non-recurring items on reported results each year, the Group uses organic revenue, organic operating profit and organic EBITDA (as defined)\* as additional performance indicators to assess performance of pre-existing (also referred to as underlying, heritage, like-for-like or ongoing) operations each year.

Organic revenue, organic operating profit and organic EBITDA (as defined)\* is arrived at by excluding the incremental revenue, operating profit and EBITDA (as defined)\* contributions from current and prior year acquisitions and divestments, the impact of exchange translation and the impact of any non-recurring items. In the Business Performance section on pages 22 to 53, changes in organic revenue, organic operating profit and organic EBITDA (as defined)\* are presented as additional measures of revenue, operating profit and EBITDA (as defined)\* to provide a greater understanding of the performance of the Group. A reconciliation of the changes in organic revenue, organic operating profit and organic EBITDA (as defined)\* to the changes in total revenue, operating profit and EBITDA (as defined)\* for the Group and by segment, is presented with the discussion of each segment's performance in tables contained in the segment discussion commencing on page 32.

#### Adjusted Basic Earnings per Ordinary Share.

Adjusted basic earnings per Ordinary Share has been used by management as it presents a more accurate picture of the profit attributable to equity holders of the Group, before certain one-off items (net of related tax). Management believes adjusted basic earnings per Ordinary Share provides useful information for investors and allows more meaningful period-to-period comparisons of our operating results. This is a non-GAAP measure as it removes the impact of the one-off past service credit due to changes in the Group's pension scheme in Switzerland and the one-off benefit of a reduction in the Group's deferred tax liabilities due to changes in US tax legislation. As these are one-off items, relating to 2017, no comparative information is required.

#### Revenue from continuing and discontinued operations, EBITDA (as defined)\* from continuing and discontinued operations and Operating Profit from continuing and discontinued operations.

As detailed in note 2 to the Consolidated Financial Statements, our Americas Distribution segment has been classified as discontinued operations in accordance with IFRS 5. In certain instances throughout the Annual Report and Form 20-F we refer to revenue, EBITDA (as defined)\* and operating profit from continuing and discontinued operations. Information presented on this basis is useful to investors as (i) it provides a greater understanding of the Group's performance and (ii) assists investors in the comparison of the Group's performance with that of other companies. A reconciliation of each of these measures is detailed in note 1 to the Consolidated Financial Statements and on page 210.



## Contractual Obligations

An analysis of the maturity profile of debt, finance and operating leases, purchase obligations, deferred and contingent acquisition consideration and pension scheme contribution commitments at 31 December 2017 is as follows:

### Contractual Obligations

Payments due by period	Total €m	Less than 1 year	1-3 years	3-5 years	More than 5 years
		€m	€m	€m	€m
Interest-bearing loans and borrowings (i)	7,950	320	1,252	1,296	5,082
Finance leases	12	3	4	2	3
Estimated interest payments on contractually-committed debt and finance leases (ii)	2,542	284	491	384	1,383
Deferred and contingent acquisition consideration	265	167	63	24	11
Operating leases (iii)	2,191	419	598	364	810
Purchase obligations (iv)	1,295	611	178	117	389
Retirement benefit obligation commitments (v)	34	19	4	3	8
<b>Total</b>	<b>14,289</b>	<b>1,823</b>	<b>2,590</b>	<b>2,190</b>	<b>7,686</b>

- (i) Of the €8.0 billion total gross debt, €0.1 billion is drawn on revolving facilities which may be repaid and redrawn up to the date of maturity. The interest payments are estimated assuming these loans are repaid on facility maturity dates.
- (ii) These interest payments have been estimated on the basis of the following assumptions: (a) no change in variable interest rates; (b) no change in exchange rates; (c) that all debt is repaid as if it falls due from future cash generation; and (d) none is refinanced by future debt issuance.
- (iii) Includes €252 million relating to discontinued operations. See further details in note 29 to the Consolidated Financial Statements.
- (iv) Purchase obligations include contracted for capital expenditure. A summary of the Group's future purchase commitments as at 31 December 2017 for capital expenditure are set out in note 14 to the Consolidated Financial Statements. These expenditures for replacement and new projects are in the ordinary course of business and will be financed from internal resources.
- (v) These retirement benefit commitments comprise the contracted payments related to our pension schemes in the UK and Ireland. See further details in note 28 to the Consolidated Financial Statements.

### Quantitative and Qualitative Information about Market Risk

CRH addresses the sensitivity of the Group's interest rate swaps and debt obligations to changes in interest rates in a sensitivity analysis technique that measures the estimated impacts on the income statement and on equity of either an increase or decrease in market interest rates or a strengthening or weakening in the US Dollar against all other currencies, from the rates applicable at 31 December 2017, for each class of financial instrument with all other variables remaining constant. The technique used measures the estimated impact on profit before tax and on total equity arising on net year-end floating rate debt and on year-end equity, based on either an

increase/decrease of 1% and 0.5% in floating interest rates or a 5% and 2.5% strengthening/weakening in the US Dollar/euro exchange rate. The US Dollar/euro rate has been selected for this sensitivity analysis given the materiality of the Group's activities in the US. This analysis, set out in note 22 to the Consolidated Financial Statements, is for illustrative purposes only as in practice interest and foreign exchange rates rarely change in isolation.

Quantitative and qualitative information and sensitivity analysis of market risk is contained in notes 21 to 25 to the Consolidated Financial Statements.

### Off-Balance Sheet Arrangements

CRH does not have any off-balance sheet arrangements that have, or are reasonably likely to have a current or future effect on CRH's financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources that is material to investors.

## Property, Plants and Equipment

At 16 February 2018, CRH had a total of 2,960 building materials production locations and 684 Merchandising and DIY locations. 1,613 locations are leased, with the remaining 2,031 locations held on a freehold basis.

The significant subsidiary locations as at 31 December 2017 are the cement facilities in the Philippines, Poland, Ukraine, the UK, Romania, Canada, Slovakia, Ireland, Germany, France and Brazil. The clinker (the key intermediate product in the manufacture of cement) capacity for these locations is set out in the table below. Further details on locations and products manufactured are provided in the Business Performance section on pages 22 to 53. None of CRH's individual properties is of material significance to the Group.

### Significant Locations – Clinker Capacity

Subsidiary	Country	Number of plants	Clinker Capacity (tonnes per hour)
Republic Cement	Philippines	5	613
Grupa Ożarów	Poland	1	342
Podilsky Cement PJSC	Ukraine	1	313
Tarmac	United Kingdom	3	306
CRH Romania	Romania	2	305
CRH Canada	Canada	2	292
CRH Slovakia	Slovakia	2	290
Irish Cement	Ireland	2	288
Opterra	Germany	2	268
Eqiom	France	3	243
CRH Brazil	Brazil	3	200

CRH believes that all the facilities are in good condition, adequate for their purpose and suitably utilised according to the individual nature and requirements of the relevant operations. CRH has a continuing programme of improvements and replacements to properties when considered appropriate to meet the needs of the individual operations. Further information in relation to the Group's accounting policy and process governing any impairment of property, plant and equipment is given on page 127 and in note 14 to the Consolidated Financial Statements on page 152.

### Sources and Availability of Raw Materials

CRH generally owns or leases the real estate on which its main raw materials, namely aggregates, are found. CRH is a significant purchaser of certain important materials or resources such as cement, liquid bitumen, steel, gas, fuel and other energy supplies, the cost of which can fluctuate significantly and consequently have an adverse impact on CRH's business. CRH is not generally dependent on any one source for the supply of these materials or resources, other than in certain jurisdictions with regard to the supply of gas and electricity. Competitive markets generally exist in the jurisdictions in which CRH operates for the supply of cement, bitumen, steel and fuel.

### Mine Safety Disclosures

The information concerning mine safety violations and other regulatory matters required by Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act is included in Exhibit 16 to CRH's Annual Report on Form 20-F, as filed with the SEC.



# Mineral Reserves

## Activities with Reserves Backing (i)

		Property acreage (hectares) (ii)				% of mineral reserves by rock type				2017
	Physical location	No. of quarries /pits	Owned	Leased	Proven & probable reserves (iii)	Years to depletion (iv)	Hard rock	Sand & gravel	Other	Annualised extraction (v)
Europe Heavyside										
	France	3	512	-	91	34	90%	-	10%	2.8
	Germany	3	314	-	158	59	100%	-	-	2.9
	Ireland	2	260	-	208	82	100%	-	-	2.7
	Poland	2	293	-	174	44	93%	6%	1%	4.1
Cement	Romania	6	220	898	242	60	83%	-	17%	4.0
	Serbia	2	54	41	108	155	100%	-	-	0.8
	Slovakia	5	341	48	301	138	92%	-	8%	2.3
	Spain	1	34	-	85	232	100%	-	-	0.4
	Switzerland	3	93	6	23	17	100%	-	-	1.4
	Ukraine	2	240	-	125	43	100%	-	-	2.4
	United Kingdom	6	500	154	273	69	97%	-	3%	4.1
	Finland	111	520	335	146	13	68%	32%	-	10.0
Aggregates	France	52	638	953	254	30	70%	30%	-	9.0
	Ireland	124	5,182	70	1,114	78	85%	15%	-	15.3
	Poland	3	243	10	150	44	92%	8%	-	2.7
	Romania	20	86	344	53	22	96%	4%	-	1.7
	Spain	11	119	64	107	59	99%	1%	-	2.0
	United Kingdom	168	11,964	3,014	1,350	32	84%	16%	-	42.0
	Other	41	333	572	184	20	74%	26%	-	9.0
	Czech Republic, Ireland, Poland, United Kingdom	4	150	10	121	32	100%	-	-	3.7
Lime	9	341	-	298	43	100%	-	-	7.0	
Subtotals		578	22,437	6,519	5,565		88%	10%	2%	
Americas Materials										
Cement	Brazil	3	1,072	-	166	83	100%	-	-	1.9
	Canada	2	717	-	293	94	100%	-	-	3.1
	United States	5	1,175	19	85	53	100%	-	-	1.6
Aggregates	Canada	41	5,999	431	709	41	82%	18%	-	18.1
	United States	769	45,920	20,222	14,931	103	73%	27%	-	149.9
Subtotals		820	54,883	20,672	16,184		75%	25%	-	
Asia										
Cement	Philippines	14	2,247	17	222	34	100%	-	-	6.6
Aggregates	Philippines	1	-	17	25	50	100%	-	-	0.6
Subtotals		15	2,247	34	247		100%	-	-	
Group totals		1,413	79,567	27,225	21,996		78%	22%	-	

(i) The disclosures made in this category refer to those facilities which are engaged in on-site processing of reserves in the various forms.

(ii) 1 hectare equals approximately 2.47 acres.

(iii) Where reserves are leased, the data presented above is restricted to include only that material which can be produced over the life of the contractual commitment inherent in the lease; the totals shown pertain only to amounts which are proven and probable. All of the proven and probable reserves are permitted and are quoted in millions of tonnes.

(iv) Years to depletion is based on the average of the most recent three years annualised production.

(v) Annualised extraction is quoted in millions of tonnes.

The Group's reserves for the production of primary building materials (which encompass cement, lime, aggregates (stone, sand and gravel), asphalt, readymixed concrete and concrete products) fall into a variety of categories spanning a wide number of rock types and geological classifications – see the table on the previous page setting out the activities with reserves backing.

Reserve estimates are generally prepared by third-party experts (i.e. geologists or engineers) prior to acquisition; this procedure is a critical component in the Group's due diligence process in connection with any acquisition. Subsequent to acquisition, estimates are typically updated by company engineers and/or geologists and are reviewed annually by corporate and/or divisional staff. However, where deemed appropriate by management, in the context of large or strategically important deposits, the services of third-party consultant geologists and/or engineers may be employed to validate reserves quantities outside of the aforementioned due diligence framework on an ongoing basis.

The Group has not employed third-parties to review reserves over the three-year period ending 31 December 2017 other than in business combination activities and specific instances where such review was warranted.

Reserve estimates are subject to annual review by each of the relevant operating entities across the Group. The estimation process distinguishes between owned and leased reserves segregated into permitted and unpermitted as appropriate and includes only those permitted reserves which are proven and probable. The term "permitted" reserves refers to those tonnages which can currently be mined without any environmental or legal constraints. Permitted owned reserve estimates are based on estimated recoverable tonnes whilst permitted leased reserve estimates are based on estimated total recoverable tonnes which may be extracted over the term of the lease contract.

Proven and probable reserve estimates are based on recoverable tonnes only and are thus stated net of estimated production losses and other matters factored into the computation (e.g. required slopes/benches). In order for reserves to qualify for inclusion in the "proven and probable" category, the following conditions must be satisfied:

- the reserves must be homogeneous deposits based on drill data and/or local geology; and
- the deposits must be located on owned land or on land subject to lease

None of CRH's mineral-bearing properties is individually material to the Group.



## Risk Factors

This section describes the principal risks and uncertainties that could affect the Group's business. If any of these risks occur, the Group's business, financial condition, results of operations and prospects could be materially adversely affected.

The risks and uncertainties listed below should be considered in connection with any forward-looking statements in this Annual Report and Form 20-F and the cautionary statements contained in Corporate Governance - Disclaimer/Forward-Looking Statements on page 97.

The Risk Factors have been grouped to focus on key strategic, operational, compliance and financial and reporting risks.

## Key Strategic Risk Factors

### Industry cyclicality

Risk Factor	Discussion
<b>Description:</b> The level of construction activity in local and national markets is inherently cyclical being influenced by a wide variety of factors including global and national economic circumstances, governments' ability to fund infrastructure projects, consumer sentiment and weather conditions. Financial performance may also be negatively impacted by unfavourable swings in fuel and other commodity/raw material prices.	<p>The Group's operating and financial performance is influenced by general economic conditions and the state of the residential, industrial and commercial and infrastructure construction markets in the countries in which it operates.</p> <p>In general, economic uncertainty exacerbates negative trends in construction activity leading to postponement in orders. Construction markets are inherently cyclical and are affected by many factors that are beyond the Group's control, including:</p> <ul style="list-style-type: none"><li>• the price of fuel and principal energy-related raw materials such as bitumen and steel (which accounted for approximately 8% of annual Group sales revenues in 2017);</li><li>• the performance of the national economies in the countries in which the Group operates, across Europe, Americas and Asia;</li><li>• monetary policies in the countries in which the Group operates — for example, an increase in interest rates typically reduces the volume of mortgage borrowings thus impacting residential construction activity;</li><li>• the allocation of government funding for public infrastructure programmes, such as the development of highways in the US under the Fixing Americas Surface Transportation Act (FAST Act); and</li><li>• the level of demand for construction materials and services, with sustained adverse weather conditions leading to potential disruptions or curtailments in outdoor construction activity</li></ul> <p>The adequacy and timeliness of the actions taken by the Group's management team are of critical importance in maintaining financial performance at appropriate levels.</p> <p>Each of the above factors could have a material adverse effect on the Group's operating results and the market price of CRH plc's Ordinary Shares.</p>

### Political and economic uncertainty

Risk Factor	Discussion
<b>Description:</b> As an international business, the Group operates in many countries with differing, and in some cases, potentially fast-changing economic, social and political conditions. These conditions, which may be heightened by the uncertainties resulting from the commencement of proceedings for the UK to exit the European Union, in addition to continued instability in Brazil, Philippines and Ukraine, could include political unrest, currency disintegration, strikes, restrictions on repatriation of earnings, changes in law and policies, activism, and civil disturbance and may be triggered or worsened by other forms of instability including natural disasters, epidemics, widespread transmission of diseases and terrorist attacks. These factors are of particular relevance in developing/emerging markets.	<p>Whilst economic trends are on average improving across many of CRH's markets, the UK's decision to exit the European Union, together with the effects of unwinding the sustained monetary stimulus in the US, the ECB's plans to scale back quantitative easing in the Eurozone and ongoing tensions in the Korean peninsula, have collectively contributed to heightened uncertainty, with possible upside and downside economic consequences.</p> <p>The Group currently operates mainly in Western Europe and North America as well as, to a lesser degree, in developing countries/emerging markets in Eastern Europe, the Philippines, Brazil, China and India. The economies of these countries are at varying stages of socioeconomic and macroeconomic development which could give rise to a number of risks, uncertainties and challenges and could include the following:</p> <ul style="list-style-type: none"><li>• changes in political, social or economic conditions;</li><li>• trade protection measures and import or export licensing requirements;</li><li>• potentially negative consequences from changes in tax laws;</li><li>• labour practices and differing labour regulations;</li><li>• procurement which contravenes ethical considerations;</li><li>• unexpected changes in regulatory requirements;</li><li>• state-imposed restrictions on repatriation of funds; and</li><li>• the outbreak of armed conflict</li></ul> <p>The Group also has significant business interests in Ukraine, where the outlook remains uncertain.</p>

### Commodity products and substitution

Risk Factor	Discussion
<b>Description:</b> The Group faces strong volume and price competition across its product lines, stemming from the fact that many of the Group's products are commodities. In addition, existing products may be replaced by substitute products which the Group does not produce or distribute, or new construction techniques may be devised.	<p>The competitive environment in which the Group operates can be significantly impacted by general economic conditions in combination with local factors including the number of competitors, the degree of utilisation of production capacity and the specifics of product demand. Many of the Group's products are commodities and competition in such circumstances is driven largely by price. Across the multitude of largely local markets in which the Group conducts business, downward pricing pressure is experienced from time to time, and the Group may not always be in a position to recover increased operating expenses (caused by factors such as increased fuel and raw material prices) through higher sale prices.</p> <p>The cement business, in particular, is capital intensive resulting in significant fixed and semi-fixed costs. The Group's profits are therefore sensitive to changes in volume, which is driven by highly competitive markets, and impacted by ongoing capital expenditure needs.</p> <p>A number of the products sold by the Group (both those manufactured internally and those distributed) compete with other building products that do not feature in the existing product range. Any significant shift in demand preference from the Group's existing products to substitute products, which the Group does not produce or distribute, could adversely impact market share and results of operations.</p>





## Key Strategic Risk Factors - continued

### Reserves availability and planning

Risk Factor	Discussion
<b>Description:</b> Certain of the Group's businesses require long-term reserves backing necessitating detailed utilisation planning. Appropriate reserves are an increasingly scarce commodity and licences and/or permits are required to enable operation. There are numerous uncertainties inherent in reserves estimation and in projecting future rates of production.	Continuity of the cash flows derived from the production and sale of the related heavyside materials and products is dependent on satisfactory reserves planning and on the presence of appropriate long-term arrangements for replacement. There can be no assurance that the required licences and permits will be forthcoming at the appropriate juncture or that relevant operating entities will continue to satisfy the many terms and conditions under which such licences and permits are granted. The failure to plan adequately for current and future utilisation or to ensure ongoing compliance with the requirements of issuing authorities could lead to withdrawal of the related licence or permit and consequential disruption to operations.
<b>Impact:</b> Failure by the Group to plan adequately for depletion may result in sub-optimal or uneconomic utilisation giving rise to unplanned capital expenditure or acquisition activity, lower financial performance and the need to obtain new licences and/or permits to operate. Operating entities may fail to obtain or renew or may experience material delays in securing the requisite government approvals, licences and permits for the conduct of business.	

### Business portfolio management: acquisition and divestment activity

Risk Factor	Discussion
<b>Description:</b> Growth through acquisition and active management of the Group's business portfolio are key elements of the Group's strategy with the Group's balanced portfolio growing year on year through bolt-on activity occasionally supplemented by larger and/or step-change transactions.	The Group's acquisition strategy focuses on value-enhancing mid-sized acquisitions, largely in existing markets, supplemented from time to time by larger strategic acquisitions into new markets or new building products. In addition, as part of its ongoing commitment to active portfolio management, the Group may, from time to time, divest businesses which are evaluated to be non-core or underperforming.
In addition, the Group may be liable or remain liable for the past acts, omissions or liabilities of companies or businesses it has acquired or divested.	The realisation of the Group's acquisition strategy is dependent on the ability to identify and acquire suitable assets at appropriate prices thus satisfying the stringent cash flow and return on investment criteria underpinning such activities. The Group may not be able to identify such companies, and, even if identified, may not be able to acquire them because of a variety of factors including the outcome of due diligence processes, the ability to raise funds (as required) on acceptable terms, the need for competition authority approval in certain instances and competition for transactions from peers and other entities exploring acquisition opportunities in the building materials sector. In addition, situations may arise where the Group may be liable for the past acts or omissions or liabilities of companies acquired, or remains liable in cases of divestment; for example, the potential environmental liabilities addressed under the "Sustainability, Corporate Social Responsibility and Climate Change" Risk Factor on page 222.
<b>Impact:</b> The Group may not be able to continue to grow as contemplated in its business plans if it is unable to identify attractive targets (including potential new platforms for growth), divest non-core or underperforming entities, execute full and proper due diligence, raise funds on acceptable terms, complete such acquisition transactions, integrate the operations of the acquired businesses, retain key staff and realise anticipated levels of profitability and cash flows. If the Group is held liable for the past acts, omissions or liabilities of companies or businesses it has acquired, or remains liable in cases of divestment, those liabilities may either be unforeseen or greater than anticipated at the time of the relevant acquisition or divestment.	The Group's ability to realise the expected benefits from acquisition activity depends, in large part, on its ability to integrate newly-acquired businesses in a timely and effective manner. Even if the Group is able to acquire suitable companies, it still may not achieve the growth synergies or other financial and operating benefits it expected to achieve, and the Group may incur write-downs, impairment charges or unforeseen liabilities that could negatively affect its operating results or financial position or could otherwise harm the Group's business. Further, integrating an acquired business, product or technology could divert management time and resources from other matters.

### Joint ventures and associates

Risk Factor	Discussion
<b>Description:</b> The Group does not have a controlling interest in certain of the businesses (i.e. joint ventures and associates) in which it has invested and may invest. The absence of a controlling interest gives rise to increased governance complexity and a need for proactive relationship management, which may restrict the Group's ability to generate adequate returns and to develop and grow these businesses.	Due to the absence of full control of joint ventures and associates, important decisions such as the approval of business plans and the timing and amount of cash distributions and capital expenditures, for example, may require the consent of partners or may be approved without the Group's consent. In addition, the lack of controlling interest may give rise to the non-realisation of operating synergies and lower cash flows than anticipated at the time of investment, thereby increasing the likelihood of impairment of goodwill or other assets.
<b>Impact:</b> These limitations could impair the Group's ability to manage joint ventures and associates effectively and/or realise its strategic goals for these businesses. In addition, improper management or ineffective policies, procedures or controls for non-controlled entities could adversely affect the business, results of operations or financial condition of the relevant investment and, by corollary, the Group.	These limitations could impair the Group's ability to manage joint ventures and associates effectively and/or realise the strategic goals for these businesses. In addition, improper management or ineffective policies, procedures or controls for non-controlled entities could adversely affect the business, results of operations or financial condition of the relevant investment.

### Human resources and talent management

Risk Factor	Discussion
<b>Description:</b> Existing processes to recruit, develop and retain talented individuals and promote their mobility within a decentralised organisation may be inadequate thus giving rise to employee/management attrition, difficulties in succession planning and inadequate "bench strength", potentially impeding the continued realisation of the core strategic objectives of value creation and growth. In addition, the Group is exposed to various risks associated with collective representation of employees in certain jurisdictions; these risks could include strikes and increased wage demands.	The identification and subsequent assessment, management, development and deployment of talented individuals is of major importance in continuing to deliver on the Group's strategy and in ensuring that succession planning objectives for key executive roles throughout its international operations are satisfied.
<b>Impact:</b> In the longer term, failure to manage talent and plan for leadership and succession could impede the realisation of core strategic objectives.	The maintenance of positive employee and trade/labour union relations is key to the successful operation of the Group. Some of the Group's employees are represented by trade/labour unions under various collective agreements. For unionised employees, the Group may not be able to renegotiate satisfactorily the relevant collective agreements upon expiration and may face tougher negotiations and higher wage demands than would be the case for non-unionised employees. In addition, existing labour agreements may not prevent a strike or work stoppage with any such activity creating reputational risk and potentially having a material adverse effect on the results of operations and financial condition of the Group.



## Key Operational Risk Factors

### Sustainability, corporate social responsibility and climate change

Risk Factor	Discussion
<b>Description:</b> The Group is subject to stringent and evolving laws, regulations, standards and best practices from a sustainability perspective. The Group's use of the term "sustainability" comprises Health & Safety management (i.e. embedding a culture of safety and ensuring safe working environments), conducting business with integrity, protecting the environment, preparing for and managing the impact of climate change on business activities, managing stakeholders, attaining strong social performance credentials and, lastly, using the foregoing to generate innovation and other business opportunities to create value. Against this backdrop, the nature of the Group's activities pose or create certain inherent risks, responsibility for which is vested with operating entity management, Group and Divisional management and the Board of Directors.	The Group is subject to a broad and increasingly stringent range of existing and evolving laws, regulations, standards and best practices with respect to governance, the environment, Health & Safety and social performance in each of the jurisdictions in which it operates giving rise to significant compliance costs, potential legal liability exposure and potential limitations on the development of its operations. These laws, regulations, standards and best practices relate to, amongst other things, climate change, noise, emissions to air, water and soil, the use and handling of hazardous materials and waste disposal practices. Given the above, the risk of increased environmental and other compliance costs and unplanned capital expenditure is inherent in conducting business in the building materials sector and the impact of future developments in these respects on the Group's activities, products, operations, profitability and cash flows cannot be estimated; there can therefore be no assurance that material liabilities and costs will not be incurred in the future or that material limitations on the development of its operations will not arise.
<b>Impact:</b> Non-adherence to the many laws, regulations, standards and best practices in the sustainability arena may give rise to increased ongoing remediation and/or other compliance costs and may adversely affect the Group's business, results of operations, financial condition and/or prospects. Failure to leverage innovation and other sustainability initiatives may shorten product life cycles or give rise to early product obsolescence thus impairing financial performance and/or future value creation. In addition, the failure to embed sustainability principles across the Group's businesses and in the Group's strategy may lead to adverse investor sentiment or reduced investor interest in CRH plc's Ordinary Shares.	Environmental and Health & Safety and other laws, regulations, standards and best practices may expose the Group to the risk of substantial costs and liabilities, including liabilities associated with assets that have been sold or acquired and activities that have been discontinued. In addition, many of the Group's manufacturing sites have a history of industrial use and, while strict environmental operating standards are applied and extensive environmental due diligence is undertaken in acquisition activity, some soil and groundwater contamination has occurred in the past at a limited number of sites. Although the associated remediation costs incurred to date have not been material, they may become more significant in the future. The Group may face increased remediation liabilities and legal proceedings concerning environmental and Health & Safety matters in the future.
	The impact of climate change may over time affect the operations of the Group and the markets in which the Group operates. This could include acute and chronic changes in weather, technological development, policy and regulatory change, and market and economic responses. Efforts to address climate change through laws and regulations, for example by requiring reductions in emissions of greenhouse gases (GHGs), can create economic risks and uncertainties for the Group's businesses. Such risks could include the cost of purchasing allowances or credits to meet GHG emission caps, the cost of installing equipment to reduce emissions to comply with GHG limits or required technological standards, decreased profits or losses arising from decreased demand for the Group's goods and higher production costs resulting directly or indirectly from the imposition of legislative or regulatory controls. To the extent that financial markets view the impact of climate change emissions as a financial risk, this could have a material adverse effect on the cost of and access to capital.

### Operational continuity

Risk Factor	Discussion
<b>Description:</b> The Group's operating entities are subject to a wide range of operating risks and hazards including climatic conditions such as floods and hurricanes/ cyclones, seismic activity, technical failures, interruptions to power supplies, industrial accidents and disputes, environmental hazards, fire and crime.	Responsibility for business continuity management is vested in operating entity management throughout the Group to ensure that the circumstances likely to give rise to material operational disruption are addressed in a manner appropriate to the relevant operating entity.  The insurance coverage provided for operating entities includes property damage and business interruption, public and products liability/general liability, employers' liability/workers' compensation, environmental impairment liability, automobile liability and directors' and officers' liability. Adequate coverage at reasonable rates is not always commercially available to cover all potential risks and no assurance can be given that the insurance arrangements in place would be sufficient to cover all losses or liabilities to which the Group might be exposed.  As at 31 December 2017, the total insurance provision, which is subject to periodic actuarial valuation and is discounted, amounted to €292 million (2016: €286 million); a substantial proportion of this figure pertained to claims which are classified as "incurred but not reported".
<b>Impact:</b> The occurrence of a significant adverse event could lead to prolonged disruption of business activities and, as a result, could have a material impact on the business, results of operations, financial condition or prospects of the Group.	

### Information technology and security/cyber

Risk Factor	Discussion
<b>Description:</b> The Group is dependent on the employment of advanced information systems (digital infrastructure, applications and networks) to support its business activities, and is exposed to risks of failure in the operation of these systems. Further, the Group is exposed to security threats to its digital infrastructure through cyber-crime. Such attacks are by their nature technologically sophisticated and may be difficult to detect and defend in a timely fashion.	Security and cyber incidents are becoming increasingly sophisticated and are continually evolving. Our systems for protecting against cyber security risks may not be sufficient. As cyber incidents continue to evolve, we may be required to expend additional resources to continue to modify or enhance our protection measures or to investigate and remediate any vulnerability to cyber incidents. Such attacks may result in interference with production software, corruption or theft of sensitive data, manipulation of financial data accessible through digital infrastructure, or reputational losses as a result of misrepresentation via social media and other websites. There can be no assurance that future attacks will not be successful due to their increasing sophistication and the difficulties in detecting and defending against them in a timely fashion.
<b>Impact:</b> Should a security breach or other incident materialise, it could lead to interference with production processes, manipulation of financial data, the theft of private data or intellectual property, misappropriation of funds, or misrepresentation of information via digital media. In addition to potential irretrievability or corruption of critical data, the Group could suffer reputational losses, regulatory penalties and incur significant financial costs in remediation.	





## Key Compliance Risk Factors

### Laws and regulations

Risk Factor	Discussion
<b>Description:</b> The Group is subject to many local and international laws and regulations, including those relating to competition law, corruption and fraud, across many jurisdictions of operation and is therefore exposed to changes in those laws and regulations and to the outcome of any investigations conducted by governmental, international or other regulatory authorities.	The Group is subject to various statutes, regulations and laws applicable to businesses generally in the countries and markets in which it operates. These include statutes, regulations and laws affecting land usage, zoning, labour and employment practices, competition, financial reporting, taxation, anti-bribery, anti-corruption, governance and other matters. The Group mandates that its employees comply with its Code of Business Conduct which stipulates best practices in relation to regulatory matters. The Group cannot guarantee that its employees will at all times successfully comply with all demands of regulatory agencies in a manner which will not materially adversely affect its business, results of operations, financial condition or prospects.
<b>Impact:</b> Potential breaches of local and international laws and regulations in the areas of competition law, corruption and fraud, among others, could result in the imposition of significant fines and/or sanctions for non-compliance, including the withdrawal of operating licences, and may inflict reputational damage.	There can be no assurance that the Group's policies and procedures will afford adequate protection against fraudulent and/or corrupt activity and any such activity could have a material adverse effect on the Group's business, results of operations, financial condition or prospects.

## Key Financial and Reporting Risk Factors

### Financial instruments (interest rate and leverage, foreign currency, counterparty, credit ratings and liquidity)

Risk Factor	Discussion
<b>Description:</b> The Group uses financial instruments throughout its businesses giving rise to interest rate and leverage, foreign currency, counterparty, credit rating and liquidity risks. A significant portion of the cash generated by the Group from operational activity is currently dedicated to the payment of principal and interest on indebtedness. In addition, the Group has entered into certain financing agreements containing restrictive covenants requiring it to maintain a certain minimum interest coverage ratio and a certain minimum net worth.	<i>Interest rate and leverage risks:</i> The Group's exposures to changes in interest rates result from investing and borrowing activities undertaken to manage liquidity and capital requirements and stem predominantly from long-term debt obligations. Borrowing costs are managed through employing a mix of fixed and floating rate debt and interest rate swaps, where appropriate. As at 31 December 2017, the Group had outstanding net indebtedness of approximately €5.8 billion (2016: €5.3 billion). Following recent acquisition activity, the Group has significant outstanding indebtedness, which may impair its operating and financial flexibility over the longer term and could adversely affect its business, results of operations and financial position. This high level of indebtedness could give rise to the Group dedicating a substantial portion of its cash flow to debt service thereby reducing the funds available in the longer term for working capital, capital expenditure, acquisitions, distributions to shareholders and other general corporate purposes and limiting its ability to borrow additional funds and to respond to competitive pressures. In addition, the Group's level of indebtedness may give rise to a general increase in interest rates borne and there can be no assurance that the Group will not be adversely impacted by increases in borrowing costs in the future.  The prescribed minimum PBITDA/net interest (all as defined in the relevant agreements as discussed in note 24 to the Consolidated Financial Statements) cover ratio, which is the Group's principal financial covenant, is 4.5 times and the prescribed minimum net worth, which is the Group's other financial covenant, is €6.2 billion. For the year ended 31 December 2017, PBITDA/net interest was 11.6 times on a total Group basis (2016:10.1 times) and the Group's net worth on a total Group basis was €16.6 billion (2016: €16.4 billion).
<b>Impact:</b> A downgrade of the Group's credit ratings may give rise to increases in funding costs in respect of future debt and may impair the Group's ability to raise funds on acceptable terms. In addition, insolvency of the financial institutions with which the Group conducts business (or a downgrade in their credit ratings) may lead to losses in derivative assets and cash and cash equivalents balances or render it more difficult for the Group either to utilise existing debt capacity or otherwise obtain financing for operations.	<i>Foreign currency risks:</i> If the euro, which is the Group's reporting currency, weakens relative to the basket of foreign currencies in which net debt is denominated (principally the US Dollar, Canadian Dollar, Swiss Franc, Philippine Peso and Pound Sterling), the net debt balance would increase; the converse would apply if the euro was to strengthen. The Group may not succeed in managing these foreign currency risks.  <i>Counterparty risks:</i> Insolvency of the financial institutions with which the Group conducts business, or a downgrade in their credit ratings, may lead to losses in derivative assets and cash and cash equivalents balances or render it more difficult either to utilise existing debt capacity or otherwise obtain financing for operations. The maximum exposure arising in the event of default on the part of the counterparty (including insolvency) is the carrying amount of the relevant financial instrument.  The Group holds significant cash balances on deposit with a variety of highly-rated financial institutions (typically invested on a short-term basis) which, together with cash and cash equivalents at 31 December 2017, totalled €2.1 billion (2016: €2.4 billion). In addition to the above, the Group enters into derivative transactions with a variety of highly-rated financial institutions giving rise to derivative assets and derivative liabilities; the relevant balances as at 31 December 2017 were €64 million and €14 million respectively (2016: €76 million and €32 million respectively). The counterparty risks inherent in these exposures may give rise to losses in the event that the relevant financial institutions suffer a ratings downgrade or become insolvent. In addition, certain of the Group's activities (e.g. highway paving in the US) give rise to significant amounts receivable from counterparties at the balance sheet date; at year-end 2017, this balance was €0.8 billion (2016: €0.8 billion). In the business environment, there is increased exposure to counterparty default, particularly as regards bad debts.



## Key Financial and Reporting Risk Factors - continued

### Financial instruments (interest rate and leverage, foreign currency, counterparty, credit ratings and liquidity) - continued

Risk Factor	Discussion
	<p><b>Credit rating risks:</b> A downgrade of the Group's credit ratings may give rise to increases in funding costs in respect of future debt and may, among other concerns, impair its ability to access debt markets or otherwise raise funds or enter into letters of credit, for example, on acceptable terms. Such a downgrade may result from factors specific to the Group, including increased indebtedness stemming from acquisition activity, or from other factors such as general economic or sector-specific weakness or sovereign credit rating ceilings.</p> <p><b>Liquidity risks:</b> The principal liquidity risks stem from the maturation of debt obligations and derivative transactions. The Group aims to achieve flexibility in funding sources through a variety of means including (i) maintaining cash and cash equivalents with a number of highly-rated counterparties; (ii) limiting the maturity of such balances; (iii) meeting the bulk of debt requirements through committed bank lines or other term financing; and (iv) having surplus committed lines of credit. However, market or economic conditions may make it difficult at times to realise this objective.</p> <p>For additional information on the above risks see note 22 to the Consolidated Financial Statements.</p>

### Defined benefit pension schemes and related obligations

Risk Factor	Discussion
<p><b>Description:</b></p> <p>The Group operates a number of defined benefit pension schemes and schemes with related obligations (for example, termination indemnities and jubilee/long-term service benefits, which are accounted for as defined benefit) in certain of its operating jurisdictions. The assets and liabilities of defined benefit pension schemes may exhibit significant period-on-period volatility attributable primarily to asset values, changes in bond yields/ discount rates and anticipated longevity.</p> <p><b>Impact:</b></p> <p>In addition to the contributions required for the ongoing service of participating employees, significant cash contributions may be required to remediate deficits applicable to past service. Further, fluctuations in the accounting surplus/deficit may adversely impact the Group's credit metrics thus harming its ability to raise funds.</p>	<p>The assumptions used in the recognition of pension assets, liabilities, income and expenses (including discount rates, rate of increase in future compensation levels, mortality rates and healthcare cost trend rates) are updated based on market and economic conditions at the respective balance sheet date and for any relevant changes to the terms and conditions of the pension and post-retirement plans. These assumptions can be affected by (i) for the discount rate, changes in the rates of return on high-quality fixed income investments; (ii) for future compensation levels, future labour market conditions and anticipated inflation; (iii) for mortality rates, changes in the relevant actuarial funding valuations or changes in best practice; and (iv) for healthcare cost trend rates, the rate of medical cost inflation in the relevant regions. The weighted average actuarial assumptions used and sensitivity analysis in relation to the significant assumptions employed in the determination of pension and other post-retirement liabilities are disclosed on pages 175 to 180. A prolonged period of financial market instability or other adverse changes in the assumptions mentioned above would have an adverse impact on the valuations of pension scheme assets.</p> <p>In addition, a number of the defined benefit pension schemes in operation throughout the Group have reported material funding deficits thus necessitating remediation either in accordance with legislative requirements or as agreed with the relevant regulators. These obligations are reflected in the contracted payments disclosure on page 214. The extent of such contributions may be exacerbated over time as a result of a prolonged period of instability in worldwide financial markets or other adverse changes in the assumptions mentioned above.</p>

### Taxation charge and balance sheet provisioning

Risk Factor	Discussion
<p><b>Description:</b></p> <p>The Group is exposed to uncertainties stemming from governmental actions in respect of taxes paid and payable in all jurisdictions of operation. In addition, various assumptions are made in the computation of the overall tax charge and in balance sheet provisions which may not be borne out in practice.</p> <p><b>Impact:</b></p> <p>Changes in the tax regimes and related government policies and regulations in the countries in which the Group operates could adversely affect its results and its effective tax rate. The final determination of tax audits or tax disputes may be different from that which is reflected in the Group's historical income tax provisions and accruals. If future audits find that additional taxes are due, the Group may be subject to incremental tax liabilities, possibly including interest and penalties, which could have a material adverse effect on cash flows, financial condition and results of operations.</p>	<p>The Group's income tax charge is based on reported profit and expected statutory tax rates, which reflect various allowances and reliefs and tax planning opportunities available to the Group in the multiple tax jurisdictions in which it operates. The determination of the Group's provision for income tax requires certain judgements and estimates in relation to matters where the ultimate tax outcome may not be certain. The recognition of deferred tax assets also requires judgement as it involves an assessment of the future recoverability of those assets. In addition, the Group is subject to tax audits which can involve complex issues that could require extended periods to conclude, the resolution of which is often not within its control. Although management believes that the estimates included in the Consolidated Financial Statements and the Group's tax return positions are reasonable, there can be no assurance that the final outcome of these matters will not differ from estimates reflected in the Group's historical income tax provisions and accruals.</p> <p>As a multinational corporation, the Group is subject to various taxes in all jurisdictions of operation. Due to economic and political conditions, tax rates in these jurisdictions may be subject to significant change. For example, the recent US Tax Cuts and Jobs Act has made significant changes to the US tax rules. The Group's future effective income tax rate could be affected (positively or negatively) by changes in the mix of earnings in countries with differing statutory tax rates, changes in the valuation of deferred tax assets or changes in tax laws or their interpretation.</p> <p>In addition, recent developments, including the European Commission's investigations on illegal state aid as well as the Organisation for Economic Co-operation and Development project on Base Erosion and Profit Shifting may result in changes to long-standing tax principles, which could adversely affect the Group's effective tax rate or result in higher cash tax liabilities. If the Group's effective income tax rate was to increase, its cash flows, financial condition and results of operations could be adversely affected.</p>

### Foreign currency translation

Risk Factor	Discussion
<p><b>Description:</b></p> <p>The principal foreign exchange risks to which the Consolidated Financial Statements are exposed pertain to adverse movements in reported results when translated into euro (which is the Group's reporting currency) together with declines in the euro value of net investments which are denominated in a wide basket of currencies other than the euro.</p> <p><b>Impact:</b></p> <p>Adverse changes in the exchange rates used to translate foreign currencies into euro have impacted and will continue to impact retained earnings. The annual impact is reported in the Consolidated Statement of Comprehensive Income.</p>	<p>Given the geographic diversity of the Group, a significant proportion of its revenues, expenses, assets and liabilities are denominated in currencies other than the euro, principally US Dollar, Canadian Dollar, Swiss Franc, Polish Zloty, Philippine Peso and Pound Sterling. From year to year, adverse changes in the exchange rates used to translate these and other foreign currencies into euro have impacted and will continue to impact consolidated results and net worth. For additional information on the impact of foreign exchange movements on the Consolidated Financial Statements for the Group for the year ended 31 December 2017, see the Business Performance section commencing on page 22 and note 22 to the Consolidated Financial Statements.</p>

### Goodwill impairment

Risk Factor	Discussion
<p><b>Description:</b></p> <p>Significant under-performance in any of the Group's major cash generating units or the divestment of businesses in the future may give rise to a material write-down of goodwill.</p> <p><b>Impact:</b></p> <p>A write-down of goodwill could have a substantial impact on the Group's income and equity.</p>	<p>An acquisition generates goodwill to the extent that the price paid exceeds the fair value of the net assets acquired. Under IFRS, goodwill and indefinite-lived intangible assets are not amortised but are subject to annual impairment testing. Other intangible assets deemed separable from goodwill arising on acquisitions are amortised. A detailed discussion of the impairment testing process, the key assumptions used, the results of that testing and the related sensitivity analysis is contained in note 15 to the Consolidated Financial Statements on pages 153 to 156.</p> <p>While a goodwill impairment charge does not impact cash flow, a full write-down at 31 December 2017 would have resulted in a charge to income and a reduction in equity of €6.9 billion (2016: €7.4 billion).</p>



# Corporate Governance Practices - NYSE

## Compliance Statement

Non-US companies such as CRH are exempt from most of the corporate governance rules of the NYSE. In common with companies listed on the ISE and the LSE, CRH's corporate governance practices reflect, inter alia, compliance with (a) domestic company law; (b) the Listing Rules of the UK Listing Authority and the ISE; and (c) the 2016 UK Corporate Governance Code, which is appended to the listing rules of the LSE and ISE.

The Board of CRH has adopted a robust set of governance principles, which reflect the Code and its principles-based approach to corporate governance. Accordingly, the way in which CRH makes determinations of Directors' independence differs from the NYSE rules. The Board has determined that, in its judgement, all of the non-executive Directors are independent. In doing so, however, the Board did not explicitly take into consideration the independence requirements outlined in the NYSE's listing standards.

## Shareholder Approval of Equity Compensation Plans

The NYSE rules require that shareholders must be given the opportunity to vote on all equity-compensation plans and material revisions to those plans. CRH complies with Irish requirements, which are similar to the NYSE rules. The Board, however, does not explicitly take into consideration the NYSE's detailed definition on what are considered "material revisions".

## Risk Management and Internal Control

The Board has delegated responsibility for monitoring the effectiveness of the Group's risk management and internal control systems to the Audit Committee\*. Such systems are designed to manage rather than eliminate the risk of failure to achieve business objectives and, in the case of internal control systems, can provide only reasonable and not absolute assurance against material misstatement or loss.

The Consolidated Financial Statements are prepared subject to oversight and control of the Finance Director, who seeks to ensure that data is captured from Group locations and all required information for disclosure in the Consolidated Financial Statements is provided. An appropriate control framework has been put in place around the recording of appropriate eliminating journals and other adjustments. The Consolidated Financial Statements are reviewed by the CRH Financial Reporting and Disclosure Group prior to being reviewed by the Audit Committee and approved by the Board of Directors.

Group management has responsibility for major strategic development and financing decisions. Responsibility for operational issues is devolved, subject to limits of authority, to product group and operating company management. Management at all levels is responsible for internal control over the business functions that have been delegated. This embedding of the system of internal control throughout the Group's operations is designed to enable the organisation to respond quickly to evolving business risks, and to ensure that significant internal control issues, should they arise, are reported promptly to appropriate levels of management.

## Management's Report on Internal Control over Financial Reporting

In accordance with the requirements of Rule 13a-15 of the US Securities Exchange Act, the following report is provided by management in respect of the Company's internal control over financial reporting. As defined by the SEC, internal control over financial reporting is a process designed by, or under the supervision of, the Company's principal executive and principal financial officers, or persons performing similar functions, and effected by the Company's Board of Directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the Consolidated Financial Statements for

external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that:

- pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the Company;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of the Consolidated Financial Statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorisations of management and Directors of the Company; and
- provide reasonable assurance regarding prevention or timely detection of unauthorised acquisition, use or disposition of the Company's assets that could have a material effect on the Consolidated Financial Statements

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the US Securities Exchange Act. Our internal control system was designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our Company's published Consolidated Financial Statements for external purposes under generally accepted accounting principles.

In connection with the preparation of the Company's annual Consolidated Financial Statements, management has undertaken an assessment of the effectiveness of the Company's internal control over financial reporting as of 31 December 2017, based on criteria established in Internal Control - Integrated Framework (2013), issued by the Committee of Sponsoring Organisations of the Treadway Commission.

As permitted by the SEC, the Company has elected to exclude an assessment of the internal controls of acquisitions made during the year 2017. These acquisitions, which are listed in note 31 to the Consolidated Financial Statements, constituted 6.4% of total assets and 10.6% of net assets, as of 31 December 2017 and 1.9% and (0.1%) of revenue (from continuing and discontinued operations) and Group profit for the financial year, respectively, for the year then ended.

Management's assessment included an evaluation of the design of the Company's internal control over financial reporting and testing of the operational effectiveness of those controls. Based on this assessment, management has concluded and hereby reports that as of 31 December 2017, the Company's internal control over financial reporting is effective.

Our auditors, EY, a registered public accounting firm, who have audited the Consolidated Financial Statements for the year ended 31 December 2017, have audited the effectiveness of the Company's internal controls over financial reporting. Their report, on which an unqualified opinion is expressed thereon, is included on page 119.

## Changes in Internal Control over Financial Reporting

During 2017, there has been no change in our internal control over financial reporting identified in connection with the evaluation required by Rules 13a-15 that occurred during the period covered by this Annual Report and Form 20-F that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Acquisitions excluded from the 2016 assessment of internal control over financial reporting were all successfully integrated into the CRH internal control systems in 2017.

## Evaluation of Disclosure Controls and Procedures

Management has evaluated the effectiveness of the design and operation of the disclosure controls and procedures as defined in Exchange Act Rules 13a-15(e) as of 31 December 2017. Based on that evaluation, the Chief Executive and the Finance Director have concluded that these disclosure controls and procedures were effective as of such date at the level of providing reasonable assurance.

In designing and evaluating our disclosure controls and procedures, management, including the Chief Executive and the Finance Director, recognised that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and management necessarily was required to apply its judgement in evaluating the cost-benefit relationship of possible controls and procedures. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within the Company have been detected.

## Code of Business Conduct

The CoBC, together with its supporting policies, sets out the guiding business principles and core values of the CRH Group. The Code complies with the applicable code of ethics regulations of the SEC arising from the Sarbanes-Oxley Act and it also reinforces the fundamental CRH principle that *"there is never a good business reason to do the wrong thing"*. The CoBC is applicable to all employees of the CRH Group including the Chief Executive and senior financial officers. The Code promotes honest and ethical conduct; full, fair, accurate, timely and understandable disclosures; and sets out the requirements for compliance with applicable governmental laws, rules and regulations.



# The Environment and Government Regulations

The most important government regulations relevant to CRH as a building materials company are environmental laws and regulations relevant to extractive and production processes. In the European Union, operations are subject to national environmental laws and regulations, most of which now emanate from European Union Directives and Regulations. In the US, operations are subject to federal, state and local environmental laws and regulations. In other jurisdictions, national environmental and local laws apply.

## Environmental Compliance Policy

In order to comply with environmental regulations, CRH has developed the following Group environmental policy, approved by the Board and applied across all Group companies, which is to:

- comply, as a minimum, with all applicable environmental legislation and continuously improve our environmental stewardship, aiming all the time to meet or exceed industry best practice;
- ensure that our employees and contractors respect their environmental responsibilities;
- address proactively the challenges and opportunities of climate change;
- optimise our use of energy and all resources;
- promote environmentally driven product innovation and new business opportunities and;
- develop positive relationships and strive to be good neighbours in every community in which we operate

Achieving the Group's environmental policy objectives at all locations is a management imperative; this line responsibility continues right up to Board level. Daily responsibility for ensuring that the Group's environmental policy is effectively implemented lies with individual location managers, assisted by a network of Environmental Liaison Officers (ELOs).

At each year-end, the ELOs assist the Group Corporate Social Responsibility & Sustainability team in carrying out a detailed assessment of Group environmental performance, which is reviewed by the Board.

## Addressing Climate Change

CRH has evaluated the risks and opportunities arising from climate change and has put in place a management strategy. In striving to reduce its emissions, CRH delivers carbon, energy and financial efficiencies for its businesses and helps to address climate change on a societal level. There is a focus on reducing the carbon footprint of products during manufacture and on increasing their contribution to reducing emissions during their lifetime. There are value creation opportunities for the Group, including opportunities for sales of products aimed at climate adaptation, such as sustainable drainage systems, flood defences, and more resilient structures. CRH is a core member of the Cement Sustainability Initiative (CSI) of the World Business Council for Sustainable Development (WBCSD). The CSI is a voluntary initiative by the world's major cement producers, promoting greater sustainability in the cement industry.

Having achieved its initial CO<sub>2</sub> reduction commitment three years ahead of target in 2012, CRH has pledged a 25% reduction in specific net CO<sub>2</sub> cement plant emissions by 2020, compared with 1990 levels. The Group is progressing successfully towards achieving this commitment, which is supported by a strategic investment programme and covers a defined portfolio of Group cement plants.

Through its membership of the CSI of the WBCSD and regional industry associations including the European Cement Association (CEMBUREAU) and the European Lime Association (EuLA) in Europe and the National Asphalt Pavement Association (NAPA) and the Portland Cement Association (PCA) in the US, CRH is actively involved in global and regional discussions on the climate change agenda. Relevant facilities in Europe operate within the European Union Emission Trading Scheme for Greenhouse Gas emissions through actively implementing carbon reduction strategies. Relevant facilities in Canada comply with relevant "cap and trade" schemes. CRH has endorsed the WBCSD Low Carbon Technology Partnership Initiative (LCTPI), a statement of ambition, which seeks a reduction in global cement CO<sub>2</sub> emissions in the range of 20-25% by 2030.

CRH acknowledges the "Paris Climate Agreement" to limit global temperature rise to 2°C (with efforts towards 1.5°C), made at the 21st

Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) in 2015. CRH has implemented capital expenditure programmes in its cement operations to reduce carbon emissions in the context of international and national commitments to reduce greenhouse gas emissions. The European Union has binding targets to reduce greenhouse gases, on 1990 levels, by 20% by 2020 and by 40% by 2030. In addition, the European Commission has suggested an objective to reduce emissions by 80% by 2050 compared to 1990. Achieving such reductions would represent a significant extra constraint on cement operations in Europe. US federal, state and local laws continue to develop to address carbon emissions. The Group may incur costs in monitoring and reporting emissions. Ultimately a "cap and trade" scheme may be implemented in the US; depending on the scope of the legislation, this could significantly impact certain operations in the US. As of 16 February 2018, the Group is not aware of any schemes that would materially affect its US operations, however, we are continuously monitoring developments in regulations.

## Possible Environmental Liabilities

At 16 February 2018, there were no material pending legal proceedings relating to site remediation which are anticipated to have a material adverse effect on the financial position or results of operations or liquidity of the Group, nor have internal reviews revealed any situations of likely material environmental liability to the Group.

## Governmental Policies

The overall level of government capital expenditures and the allocation by state entities of available funds to different projects, as well as interest rate and tax policies, directly affect the overall levels of construction activity. The terms and general availability of government permits required to conduct Group business also has an impact on the scope of Group operations. As a result such governmental decisions and policies can have a significant impact on the operating results of the Group.

# Other Disclosures

## History, Development and Organisational Structure of the Company

CRH public limited company is the Parent Company of a diversified international group of companies which manufactures and distributes a diverse range of products servicing the breadth of construction needs, from the fundamentals of heavy materials and elements to construct the frame, through value-added exterior products that complete the building envelope, to distribution channels which service construction fit-out and renewal.

The Group resulted from the merger in 1970 of two leading Irish public companies, Cement Limited (established in 1936) and Roadstone Limited (incorporated in 1949). Cement Limited manufactured and supplied cement while Roadstone Limited was primarily involved in the manufacture and supply of aggregates, readymixed concrete, mortar, coated macadam, asphalt and contract surfacing to the Irish construction industry.

As a result of planned geographic diversification since the mid-1970s, the Group has expanded by acquisition and organic growth into an international manufacturer and supplier of building materials.

The Company is incorporated and domiciled in the Republic of Ireland. CRH is a public limited company operating under the Companies Act of Ireland 2014. The Group's worldwide headquarters is located in Dublin, Ireland. Our principal executive offices are located at Belgard Castle, Clondalkin, Dublin 22 (telephone: +353 1 404 1000). The Company's registered office is located at 42 Fitzwilliam Square, Dublin 2, Ireland and our US agent is Oldcastle, Inc., 900 Ashwood Parkway, Suite 600, Atlanta, Georgia 30338.

The Company is the holding company of the Group, with direct and indirect share and loan interests in subsidiaries, joint ventures and associates. From Group headquarters, a small team of executives exercises strategic control over our decentralised operations.

CRH plc is a leading global diversified building materials group employing 85,000 people at over 3,600 operating locations in 32 countries worldwide.

CRH is the second largest building materials company worldwide and the largest in North America. The Group has leadership positions in Europe, where it is the largest heavyside materials business, as well as established strategic positions in the emerging economic regions of Asia and South America.

In the detailed description of the Group's business on pages 22 to 53, estimates of the Group's various aggregates and stone reserves have been provided by engineers employed by the individual operating companies. Details of product end-use by sector for each reporting segment are based on management estimates.

A listing of the principal subsidiary undertakings and equity accounted investments is contained on pages 246 to 251.

## Statements Regarding Competitive Position and Construction Activity

Statements made in the Business Performance section and elsewhere in this document referring to the Group's competitive position are based on the Group's belief, and in some cases rely on a range of sources, including investment analysts' reports, independent market studies and the Group's internal assessment of market share based on publicly available information about the financial results and performance of market participants.

Unless otherwise specified, references to construction activity or other market activity relate to the relevant market as a whole and are based on publicly available information from a range of sources, including independent market studies, construction industry data and economic forecasts for individual jurisdictions.

## Legal Proceedings

Group companies are parties to various legal proceedings, including some in which claims for damages have been asserted against the companies. Having taken appropriate advice, we believe that the aggregate outcome of such proceedings will not have a material effect on the Group's financial condition, results of operations or liquidity.

In 2015, the Swiss Competition Commission imposed fines on the Association of Swiss Wholesalers of the Sanitary Industry and on major Swiss wholesalers including certain Swiss CRH subsidiaries; the fine attributable to these subsidiaries was CHF34 million. While the Group remains of the view that the fine is unjustified and it has appealed to the Swiss Federal Appeals Court, a provision of €29 million (2016: €32 million) is recorded in the Group's Consolidated Balance Sheet.

## Research and Development

Research and development is not a significant focus of the Group. CRH's policy is to expense all research and development costs as they occur.

## Employees

The average number of employees for the past three financial years is disclosed in note 6 to the Consolidated Financial Statements on page 143. No significant industrial disputes have occurred at any of CRH's factories or plants during the past five years. The Group believes that relations with its employees and labour unions are satisfactory.

## Seasonality

Activity in the construction industry is characterised by cyclicity and is dependent to a considerable extent on the seasonal impact of weather in the Group's operating locations, with activity in some markets reduced significantly in winter due to inclement weather. First-half sales accounted for 47% of full-year 2017 (2016: 47%), while EBITDA (as defined)\* for the first six months of 2017 represented 36% of the full-year out-turn (2016: 36%).

## Significant Changes

In August 2017, the Group entered into a sales agreement with Beacon Roofing Supply Inc. to dispose of its 100% holding in Allied Building Products, the trading name of our Americas Distribution segment, for a consideration of US\$2.6 billion. The transaction closed on 2 January 2018. See further details in note 2 to the Consolidated Financial Statements.

In 2017, we reached an agreement with the Board of Ash Grove Cement to acquire a significant portfolio of cement and other materials assets. This deal is due to close in 2018.





## Shareholder Information



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**SCHRAUWEN**  
SANITAIR EN VERWARMING

Schrauwen, part of the Sanitary, Heating, and Plumbing (SHAP) platform in CRH's Europe Distribution Division, opened a new distribution centre in Herentals, Belgium in 2017. The warehousing facility provides spaces for over 10,000 pallets, allowing Schrauwen to improve product availability and scale-up customer fulfilment in Northern Belgium.



## Stock Exchange Listings

CRH has a premium listing on the LSE and a secondary listing on the ISE.

ADSs, each representing one Ordinary Share, are listed on the NYSE. The ADSs are evidenced by ADRs issued by The Bank of New York Mellon (the "Depositary") as Depositary under an

Amended and Restated Deposit Agreement dated 28 November 2006. The ticker symbol for the ADSs on the NYSE is CRH.

The following table sets forth, for the periods indicated, the reported high and low closing sales prices for the Ordinary Shares in euro on the ISE

and in Pound Sterling on the LSE from 2013 through 16 February 2018. The table also sets forth, for the same periods, the high and low closing sale prices for the ADSs on the NYSE.

	Pound Sterling per Ordinary Share		euro per Ordinary Share		US Dollars per ADS	
	High	Low	High	Low	High	Low
<b>Calendar Year</b>						
2013	£16.17	£12.15	€19.30	€14.68	\$26.26	\$19.56
2014	£17.88	£12.66	€21.82	€15.86	\$29.72	\$20.47
2015	£19.80	£14.71	€28.09	€18.73	\$30.95	\$22.51
2016	£28.30	£16.37	€32.96	€21.00	\$35.18	\$23.72
2017	£29.20	£25.30	€34.53	€28.48	\$37.86	\$33.41
<b>2016</b>						
First Quarter	£19.86	£16.37	€26.37	€21.00	\$28.47	\$23.72
Second Quarter	£21.85	£19.40	€27.47	€23.32	\$31.49	\$26.54
Third Quarter	£26.07	£20.96	€30.90	€24.52	\$34.04	\$27.64
Fourth Quarter	£28.30	£25.51	€32.96	€28.65	\$35.18	\$31.60
<b>2017</b>						
First Quarter	£28.98	£26.67	€34.03	€31.44	\$36.59	\$33.41
Second Quarter	£29.20	£26.14	€34.53	€30.98	\$37.76	\$33.42
Third Quarter	£28.37	£26.25	€32.28	€28.48	\$37.86	\$34.02
Fourth Quarter	£28.61	£25.30	€32.47	€28.54	\$37.58	\$33.87
<b>Recent Months</b>						
September 2017	£28.37	£26.40	€32.28	€29.09	\$37.86	\$34.78
October 2017	£28.61	£27.23	€32.47	€30.49	\$37.58	\$35.81
November 2017	£28.04	£25.66	€31.75	€28.95	\$36.79	\$34.63
December 2017	£26.63	£25.30	€30.06	€28.54	\$36.09	\$33.87
January 2018	£27.70	£26.12	€31.55	€29.73	\$38.96	\$36.09
February 2018 (through 16 February 2018)	£25.75	£23.80	€29.44	€26.76	\$36.88	\$33.19

### Additional share price data

	2017			2016		
	LSE	ISE	NYSE	LSE	ISE	NYSE
Share price at 31 December	£26.57	€29.96	\$36.09	£28.30	€32.96	\$34.38
Market capitalisation	£22.3bn	€25.1bn	\$30.3bn	£23.6bn	€27.4bn	\$28.6bn

For further information on CRH shares see note 30 to the Consolidated Financial Statements.

## Ownership of Ordinary Shares

### Shareholdings as at 31 December 2017

Geographic location (i)	Number of shares held '000s	% of total
United Kingdom	269,047	32.07
North America	212,702	25.35
Europe/Other	171,900	20.49
Retail	156,267	18.63
Ireland	28,988	3.45
Treasury (ii)	54	0.01
	838,958	100

(i) This represents a best estimate of the number of shares controlled by fund managers resident in the geographic regions indicated. Private shareholders are classified as retail above.

(ii) As detailed in note 30 to the Consolidated Financial Statements.

Holdings	Number of shareholders	% of total	Number of shares held '000s	% of total
1 - 1,000	14,583	60.15	4,618	0.55
1,001 - 10,000	7,689	31.71	22,801	2.72
10,001 - 100,000	1,408	5.81	43,626	5.20
100,001 - 1,000,000	427	1.76	140,608	16.76
Over 1,000,000	139	0.57	627,305	74.77
	24,246	100	838,958	100

The Company is not owned or controlled directly or indirectly by any government or by any corporation or by any other natural or legal person severally or jointly. The major shareholders do not have any special voting rights.

As at 28 February 2018, the Company had received notification of certain interests in its Ordinary Share capital that were equal to, or in excess of, 3%. These interests are presented in Corporate Governance – Substantial Holdings on page 70.

### Purchases of Equity Securities by the Issuer and Affiliated Persons

Month	2017		Month	2016	
	Number purchased	Price		Number purchased	Price
March	90,971	€33.21	March	81,457	€24.38 (i)
July	179	€33.33	August	86,464	€29.80 (i)
November	1,673	€31.40			
November	3,960	€31.51			

(i) Shares were purchased in Stg£ at a price of £18.88 and £25.46 respectively per share.

Other than the above, there were no purchases of equity securities by the issuer and/or affiliated persons during the course of 2017.

### CREST

Transfer of the Company's shares takes place through the CREST system. Shareholders have the choice of holding their shares in electronic form or in the form of share certificates.

Where shares are held in CREST, dividends are automatically paid in euro unless a currency election is made. CREST members should use the facility in CREST to make currency elections. Such elections must be made in respect of entire holdings as partial elections are not permissible.





## Dividends

The Company has paid dividends on its Ordinary Shares in respect of each fiscal year since the formation of the Group in 1970. Dividends are paid to shareholders on the Register of Members on the record date for the dividend. Record dates are set by the LSE and the ISE. An interim dividend is normally declared by the Board of Directors in August of each year and is generally paid in October. A final dividend is normally recommended by the Board of Directors following the end of the fiscal year to which it relates and, if approved by the shareholders at an AGM, is generally paid in May of that year.

The payment of future cash dividends will be dependent upon future earnings, the financial condition of the Group and other factors.

The below table sets forth the amounts of interim, final and total dividends in euro cent per Ordinary Share declared in respect of each fiscal year indicated. Each amount represents the actual dividend payable. Solely for the convenience of the reader, these dividends have been translated into US cents per ADS using the FRB Noon Buying Rate on the date of payment. An interim dividend of 19.2c was paid in respect of Ordinary Shares on 3 November 2017. The final dividend, if approved at the forthcoming AGM of shareholders to be held on 26 April 2018, will be paid on 4 May 2018 to shareholders on the Register of Members as at the close of business on 9 March 2018 and will bring the full-year dividend for 2017 to 68.0c. The proposed final dividend has been translated using the FRB Noon Buying Rate on 16 February 2018.

Dividend Withholding Tax (DWT) must be deducted from dividends paid by an Irish resident company, unless a shareholder is entitled to an exemption and has submitted a properly completed exemption form to the Company's Registrars, Link Asset Services (the 'Registrars'). DWT applies to dividends paid by way of cash or by way of shares under a scrip dividend scheme and is deducted at the standard rate of Income Tax (currently 20%). Non-resident shareholders and certain Irish companies, trusts, pension schemes, investment undertakings and charities may be entitled to claim exemption from DWT. Copies of the exemption form may be obtained from the Registrars. Shareholders should note that DWT will be deducted from dividends in cases where a properly completed form has not been received by the record date for a dividend. Individuals who are resident in the Republic of Ireland for tax purposes are not entitled to an exemption.

Shareholders who wish to have their dividend paid direct to their bank account, by electronic funds transfer, can do so by logging on to [www.signalshares.com](http://www.signalshares.com) (formerly [www.capitashareportal.com](http://www.capitashareportal.com)), selecting CRH and registering for the share portal (the 'Share Portal'). Shareholders should note that they will need to have their Investor Code (found on their share certificate), and follow the instructions online to register.

Alternatively shareholders can complete a paper dividend mandate form and submit it to the Registrars. A copy of the form can be obtained by logging onto the Registrar's share portal and following the instructions as set out under Registrars on page 243. Tax vouchers will continue to be sent to the shareholder's registered address under this arrangement.

Dividends are generally paid in euro. However, in order to avoid costs to shareholders, dividends are paid in Pound Sterling and US Dollars to shareholders whose shares are not held in the CREST system (see page 235) and whose address, according to the Share Register, is in the UK and the US respectively, unless they require otherwise.

Dividends in respect of 7% 'A' Cumulative Preference Shares are paid half-yearly on 5 April and 5 October.

Dividends in respect of 5% Cumulative Preference Shares are paid half-yearly on 15 April and 15 October.

Shareholders have the option of taking their dividend in the form of shares under the Company's Scrip Dividend Scheme.

Years ended 31 December	euro cent per Ordinary Share			Translated* into US cents per ADS		
	Interim	Final	Total	Interim	Final	Total
2013	18.50	44.00	62.50	25.52	60.54	86.06
2014	18.50	44.00	62.50	23.45	49.46	72.91
2015	18.50	44.00	62.50	19.88	50.25	70.13
2016	18.80	46.20	65.00	20.91	50.80	71.71
2017	19.20	48.80 <sup>(i)</sup>	68.00	22.30	60.72 <sup>(i)</sup>	83.02

<sup>(i)</sup> Proposed

\* At the FRB Noon Buying Rate on the date of payment

## Share Plans

The Group operates share option schemes, performance share plans, share participation schemes and savings-related share option schemes (the 'Schemes') for eligible employees in all regions where the regulations permit the operation of such schemes. A brief description of the Schemes is outlined below. Shares issued (whether by way of the allotment of new shares or the reissue of Treasury Shares) in connection with the Schemes rank pari passu in all respects with the Ordinary and Income shares of the Company.

### 2000 Share Option Schemes

At the AGM held on 3 May 2000, shareholders approved the adoption of Share Option Schemes (the '2000 Share Option Schemes') to replace schemes which were approved in May 1990. The 2000 Share Option Schemes were replaced by new schemes in May 2010 (see below).

Options granted under the 2000 Share Option Schemes vested when EPS growth exceeded the growth on the Irish Consumer Price Index by 5% compounded over a period of at least three years subsequent to the granting of options.

Options may be exercised not later than ten years from the date of grant of the option, and not earlier than the expiration of three years from the date of grant. Benefits under the schemes are not pensionable.

### 2010 Share Option Schemes

At the AGM held on 5 May 2010, shareholders approved the adoption of new share option schemes to replace the schemes which were approved in May 2000 (see above). Following the approval by shareholders of the 2014 Performance Share Plan (see below), no further awards will be granted under the 2010 Share Option Schemes. Consequently, the last award under the 2010 Share Option Schemes was made in 2013.

The 2010 Share Option Schemes are based on one tier of options with a single vesting test. The performance criteria for the 2010 Share Option Schemes are EPS-based. Vesting only occurs once an initial performance target has been reached and, thereafter, is dependent on performance. In considering the level of vesting based on EPS performance, the Remuneration Committee also considers the overall results of the Group.

Subject to the achievement of the EPS performance criteria, options may be exercised not later than ten years from the date of grant of the option, and not earlier than the expiration of three years from the date of grant. Benefits under the schemes are not pensionable.

### 2010 Savings-related Share Option Schemes

At the AGM held on 5 May 2010, shareholders approved the adoption of savings-related share option schemes (the '2010 Savings-related Share Option Schemes') to replace the 2000 Savings-related Share Option Schemes.

All employees of a participating subsidiary in the Republic of Ireland or the UK, who have satisfied a required qualifying period, are invited to participate in this scheme.

Eligible employees who wish to participate in the scheme enter into a savings contract with a nominated savings institution, for a three or a five-year period, to save a maximum of €500 or Stg£500, as appropriate, per month.

At the commencement of each contract period employees are granted an option to acquire Ordinary Shares in the Company at an option price which is equal to the amount proposed to be saved plus the bonus payable by the nominated savings institution at the end of the savings period. The price payable for each Ordinary Share under an option will be not less than the higher of par or 75% (or in the case of the UK scheme 80%) of the market value of a share on the day the invitation to apply for the option is issued.

On completion of the savings contract, employees may use the amount saved, together with the bonus earned, to exercise the option.

At 28 February 2018, 679,312 Ordinary Shares have been issued\* pursuant to the 2010 Savings-related Share Option Schemes to date.

### Share Participation Schemes

At the AGM on 13 May 1987, shareholders approved the establishment of Share Participation Schemes for the Company, its subsidiaries and companies under its control. Directors and employees of the companies who have at least one year's service may elect to participate in these Share Participation Schemes.

At 28 February 2018, 7,862,416 Ordinary Shares have been issued\* pursuant to the Share Participation Schemes.

### 2014 Performance Share Plan

The 2014 Performance Share Plan was approved by shareholders at the AGM on 7 May 2014. It replaces the 2010 Share Option Schemes and the 2006 Performance Share Plan. See the 2017 Directors' Remuneration Report on page 84 for more details.

### Restricted Share Plan

In 2013, the Board approved the adoption of the 2013 Restricted Share Plan. Under the rules of the 2013 Restricted Share Plan, certain senior executives (excluding executive Board Directors) can receive conditional awards of shares. As (i) executive Directors are excluded from awards and (ii) no shares are allotted or reissued to satisfy the awards, the listing rules of the LSE and ISE do not require shareholder approval for the 2013 Restricted Share Plan.



# American Depositary Shares

## Fees and charges payable by a holder of ADSs.

The Depositary collects fees for delivery and surrender of ADSs directly from investors or from intermediaries acting for them depositing shares or surrendering ADSs for the purpose of withdrawal.

The Depositary collects fees for making distributions to investors by deducting those fees from the amounts distributed or by selling a portion of distributable property to pay the fees.

The Depositary may generally refuse to provide fee-attracting services until its fees for those services are paid.

Persons depositing or withdrawing shares must pay:	For:
\$5.00 (or less) per 100 ADSs (or portion of 100 ADSs)	<ul style="list-style-type: none"><li>• Issuance of ADSs, including issuances resulting from a distribution of shares or rights or other property</li><li>• Cancellation of ADSs for the purpose of withdrawal, including if the deposit agreement terminates</li></ul>
\$5.00 (or less) per 100 ADSs (or portion of 100 ADSs)	<ul style="list-style-type: none"><li>• Distribution of deposited securities by the Depositary to ADS registered holders</li></ul>
(A fee equivalent to the fee that would be payable if securities distributed had been shares and the shares had been deposited for issuance of ADSs)	<ul style="list-style-type: none"><li>• Transfer and registration of shares on our share register to or from the name of the Depositary or its agent when the holder deposits or withdraws shares</li></ul>
Applicable Registration or Transfer fees	<ul style="list-style-type: none"><li>• Cable, telex and facsimile transmissions</li><li>• Converting foreign currency to US Dollars</li></ul>
Applicable Expenses of the Depositary	<ul style="list-style-type: none"><li>• As necessary</li></ul>
Applicable Taxes and other governmental charges the Depositary or the custodian have to pay on any ADS or share underlying an ADS, for example, stock transfer taxes, stamp duty or withholding taxes	

## Fees and direct and indirect payments made by the Depositary to the Company

Category of expense reimbursed to the Company	Amount reimbursed for the year ended 31 December 2017
New York Stock Exchange listing fees	US\$65,000
Investor relations expenses	US\$41,460
<b>Total</b>	<b>US\$106,460</b>

The table below sets forth the types of expenses that the Depositary has paid to third parties and the amounts reimbursed for the year ended 31 December 2017:

Category of expense waived or paid directly to third parties	Amount reimbursed for the year ended 31 December 2017
Printing, distribution and administration costs paid directly to third parties in connection with United States shareholder communications and Annual General Meeting related expenses in connection with the American Depositary Share programme	US\$2,989
<b>Total</b>	<b>US\$2,989</b>

The Depositary has agreed to reimburse certain Company expenses related to the Company's ADS programme and incurred by the Company in connection with the ADS programme. For the year ended 31 December 2017 the Depositary reimbursed to the Company, or paid amounts on its behalf to third parties, a total sum of US\$109,449. This table sets forth the category of expense that the Depositary has agreed to reimburse to the Company and the amounts reimbursed for the year ended 31 December 2017.

The Depositary has also agreed to waive fees for standard costs associated with the administration of the ADS programme and has paid certain expenses directly to third parties on behalf of the Company.

Under certain circumstances, including removal of the Depositary or termination of the ADS programme by the Company before November 2021, the Company is required to repay the Depositary, up to a maximum of US\$250,000, the amounts waived, reimbursed and/or expenses paid by the Depositary to or on behalf of the Company.

# Taxation

The following summary outlines the material aspects of US federal income and Republic of Ireland tax law regarding the ownership and disposition of Ordinary Shares or ADSs. Because it is a summary, holders of Ordinary Shares or ADSs are advised to consult their tax advisors with respect to the tax consequences of their ownership or disposition. This summary does not take into account the specific circumstances of any particular holders (such as tax-exempt entities, certain insurance companies, broker-dealers, traders in securities that elect to mark-to-market, investors liable for alternative minimum tax, investors that actually or constructively own 10% or more of the stock of the Company (by vote or value), investors that hold Ordinary Shares or ADSs as part of a straddle or a hedging or conversion transaction, investors that hold Ordinary Shares or ADSs as part of a wash sale for tax purposes or investors whose functional currency is not the US Dollar), some of which may be subject to special rules. In addition, if a partnership holds the Ordinary Shares or ADSs, the US federal income tax treatment of a partner will generally depend on the status of the partner and the tax treatment of the partnership and may not be described fully below. Holders of Ordinary Shares or ADSs are advised to consult their tax advisors with respect to US federal, state and local, Republic of Ireland and other tax consequences of owning and disposing of Ordinary Shares and ADSs in their particular circumstances, and in particular whether they are eligible for the benefits of the Income Tax Treaty (as defined below) in respect of their investment in the Ordinary Shares or ADSs.

The statements regarding US and Irish laws set forth below are based, in part, on representations of the Depositary and assume that each obligation in the Deposit Agreement and any related agreement will be performed in accordance with their terms.

This section is based on the Internal Revenue Code of 1986, as amended, its legislative history, existing and proposed US Treasury regulations, published rulings and court decisions, and the laws of the Republic of Ireland all as currently in effect, as well as the Convention between the Government of the United States of America and the Government of Ireland for the Avoidance of Double Taxation and the Prevention of Fiscal Evasion with Respect to Taxes on Income and Capital Gains (the "Income Tax Treaty"). These laws are subject to change, possibly on a retroactive basis.

In general, holders of ADSs will be treated as the owners of Ordinary Shares represented thereby for the purposes of the Income Tax Treaty and for US federal income tax purposes. Exchanges of Ordinary Shares for ADSs, and ADSs for Ordinary

Shares, generally will not be subject to US federal income or Irish tax.

As used herein, the term "US holder" means a beneficial owner of an Ordinary Share or ADS who (i) is a US citizen or resident, a US corporation, an estate whose income is subject to US federal income tax regardless of its source, or a trust if a US court can exercise primary supervision over the trust's administration and one or more US persons are authorised to control all substantial decisions of the trust, and (ii) is not a resident of, or ordinarily resident in, the Republic of Ireland for purposes of Irish taxes.

## Taxation of Dividends Paid to United States Holders

Under general Irish tax law, US holders are not liable for Irish tax on dividends received from the Company. On the payment of dividends, the Company is obliged to withhold DWT. The statutory rate at present is 20% of the dividend payable. Dividends paid by the Company to a US tax resident individual will be exempt from DWT, provided the following conditions are met:

1. the individual (who must be the beneficial owner) is resident for tax purposes in the US (or any country with which Ireland has a double tax treaty) and neither resident nor ordinarily resident in Ireland; and
2. the individual signs a declaration to the Company, which states that he/she is a US tax resident individual at the time of making the declaration and that he/she will notify the Company in writing when he/she no longer meets the condition in (1) above; or
3. the individual provides the Company with a certificate of tax residency from the US tax authorities

Dividends paid by the Company to a US tax resident company (which must be the beneficial owner) will be exempt from DWT, provided the following conditions are met:

1. the recipient company is resident for tax purposes in the US (or any country with which Ireland has a double tax treaty) and not under the control, either directly or indirectly, of Irish resident persons; and
2. the recipient company is not tax resident in Ireland; and
3. the recipient company provides a declaration to the Company, which states that it is entitled to an exemption from DWT, on the basis that it meets the condition in (1) above at the time of making the declaration, and that it will notify the Company when it no longer meets the condition in (1) above

For US federal income tax purposes, and subject to the passive foreign investment company (PFIC) rules discussed below, US holders will include in gross income the gross amount of any dividend paid by the Company out of its current or accumulated earnings and profits (as determined for US federal income tax purposes) as ordinary income when the dividend is actually or constructively received by the US holder, in the case of Ordinary Shares, or by the Depositary, in the case of ADSs. Any Irish tax withheld from this dividend payment must be included in this gross amount even though the amount withheld is not in fact received. Dividends paid to non-corporate US holders that constitute qualified dividend income will be taxed at the preferential rates applicable to long-term capital gains provided certain holding period requirements are met. Dividends the Company pays with respect to Ordinary Shares or ADSs generally will be qualified dividend income.

Dividends paid by CRH will not be eligible for the dividends received deduction generally allowed to US corporations in respect of dividends received from other US corporations.

The amount of the dividend distribution includable in income of a US holder will be the US Dollar value of the euro payments made, determined at the spot euro/US Dollar rate on the date such dividend distribution is includable in the income of the US holder, regardless of whether the payment is in fact converted to US Dollars. Generally any gain or loss resulting from currency exchange fluctuations during the period from the date the dividend payment is includable in income to the date such payment is converted into US Dollars will be treated as ordinary income or loss and will not be eligible for the special tax rate applicable to qualified dividend income. Such gain or loss will generally be income or loss from sources within the US for foreign tax credit limitation purposes.

Distributions in excess of current and accumulated earnings and profits, as determined for US federal income tax purposes, will be treated as a non-taxable return of capital to the extent of the US holder's basis in the Ordinary Shares or ADSs and thereafter as capital gain. However, the Company does not calculate earnings and profits in accordance with US federal income tax principles. Accordingly, US holders should expect to generally treat distributions the Company makes as dividends.

For foreign tax credit limitation purposes, dividends the Company pays with respect to Ordinary Shares or ADSs will generally be income from sources outside the US, and will, depending on your circumstances, generally be "passive" income for purposes of computing the foreign tax credit allowable to a US holder.





## Taxation - continued

Subject to certain limitations, the Irish tax withheld in accordance with the Income Tax Treaty and paid over to the Republic of Ireland will be creditable or deductible against your US federal income tax liability. Special rules apply in determining the foreign tax credit limitation with respect to dividends that are subject to the preferential tax rates. Any Irish tax withheld from distributions will not be eligible for a foreign tax credit to the extent an exemption from the tax withheld is available to the US holder.

### Capital Gains Tax

A US holder will not be liable for Irish tax on gains realised on the sale or other disposition of Ordinary Shares or ADSs unless the Ordinary Shares or ADSs are held in connection with a trade or business carried on by such holder in the Republic of Ireland through a branch or agency. A US holder will be liable for US federal income tax on such gains in the same manner as gains from a sale or other disposition of any other shares in a company.

Subject to the PFIC rules below, US holders who sell or otherwise dispose of Ordinary Shares or ADSs will recognise a capital gain or loss for US federal income tax purposes equal to the difference between the US Dollar value of the amount realised on the sale or disposition and the tax basis, determined in US Dollars, in the Ordinary Shares or ADSs.

Capital gains of a non-corporate US holder are generally taxed at a preferential rate where the holder has a holding period greater than one year, and the capital gain or loss will generally be US source for foreign tax credit limitation purposes.

### Capital Acquisitions Tax (Estate/Gift Tax)

Although non-residents may hold Ordinary Shares, the shares are deemed to be situated in the Republic of Ireland, because the Company is required to maintain its Share Register in the Republic of Ireland for Irish Capital Gains Tax purposes.

Accordingly, holders of Ordinary Shares may be subject to Irish gift or inheritance tax,

notwithstanding that the parties involved are domiciled and resident outside the Republic of Ireland. Certain exemptions apply to gifts and inheritances depending on the relationship between the donor and donee.

Under the Ireland-US Estate Tax Treaty with respect to taxes on the estates of deceased persons, credit against US federal estate tax is available in respect of any Irish inheritance tax payable in respect of transfers of Ordinary Shares.

### Additional United States Federal Income Tax Considerations

The Company believes that Ordinary Shares and ADSs should not be treated as stock of a PFIC for US federal income tax purposes, but this conclusion is a factual determination that is made annually and thus may be subject to change. If the Company is treated as a PFIC and you are a US holder that did not make a mark-to-market election, you will be subject to special rules with respect to any gain you realise on the sale or other disposition of your Ordinary Shares or ADSs and any excess distribution that the Company makes to you. Generally, any such gain or excess distribution will be allocated ratably over your holding period for the Ordinary Shares or ADSs, the amount allocated to the taxable year in which you realised the gain or received the excess distribution, or to prior years before the first year in which we were a PFIC with respect to you, will be taxed as ordinary income, the amount allocated to each prior year will be generally taxed as ordinary income at the highest tax rate in effect for each other such year, and an interest charge will be applied to any tax attributable to such gain or excess distribution for the prior years. With certain exceptions, Ordinary Shares or ADSs will be treated as stock in a PFIC if the company was a PFIC at any time during the investor's holding period in the Ordinary Shares or ADSs. In addition, dividends that you receive from the Company will not constitute qualified dividend income to you if the Company is deemed to be a PFIC either in the taxable year of the distribution or the preceding taxable year, but instead will be taxable at rates applicable to ordinary income.

### Stamp Duty

Section 90 Stamp Duties Consolidation Act 1999 exempts from Irish stamp duty transfers of ADSs where the ADSs are dealt in and quoted on a recognised stock exchange in the US and the underlying deposited securities are dealt in and quoted on a recognised stock exchange. The Irish tax authorities regard NASDAQ and the NYSE as recognised stock exchanges. Irish stamp duty will be charged at the rate of 1% of the amount or value of the consideration on any conveyance or transfer on sale of Ordinary Shares (exemption generally available in the case of single transfers with a value of less than €1,000).

## Memorandum and Articles of Association

The Company's Memorandum of Association sets out the objects and powers of the Company. The Articles of Association detail the rights attaching to each share class; the method by which the Company's shares can be purchased or reissued; the provisions which apply to the holding of and voting at general meetings; and the rules relating to the Directors, including their appointment, retirement, re-election, duties and powers.

A copy of the current Memorandum and Articles of Association can be obtained from the Group's website, [www.crh.com](http://www.crh.com).

The following summarises certain provisions of CRH's Memorandum and Articles of Association and applicable Irish law.

### Objects and Purposes

CRH is incorporated under the name CRH public limited company and is registered in Ireland with registered number 12965. Clause 4 of CRH's Memorandum of Association provides that its objects include the business of an investment holding company. Clause 4 also sets out other objects including the business of quarry masters and proprietors and lessees and workers of quarries, sand and gravel pits, mines and the like generally; the business of road-makers and contractors, building contractors, builders merchants and providers and dealers in road making and building materials, timber merchants; and the carrying on of any other business calculated to benefit CRH. The memorandum grants CRH a range of corporate capabilities to effect these objects.

### Directors

The Directors manage the business and affairs of CRH.

Directors who are in any way, whether directly or indirectly, interested in contracts or other arrangements with CRH must declare the nature of their interest at a meeting of the Directors, and, subject to certain exemptions, may not vote in respect of any contract or arrangement or other proposal whatsoever in which they have any material interest other than by virtue of their interest in shares or debentures in the Company. However, in the absence of some other material interest not indicated below, a Director is entitled to vote and to be counted in a quorum for the purpose of any vote relating to a resolution concerning the following matters:

- the giving of security or indemnity with respect to money lent or obligations taken by the Director at the request or for the benefit of the Company;
- the giving of security or indemnity to a third party with respect to a debt or obligation of the Company which the Director has assumed responsibility for under a guarantee, indemnity or the giving of security;



A Production Analyst at work at the CRH Canada Mississauga Cement Plant. In operation since 1956 and located approximately 80km west of Toronto, the plant has seen ongoing investment in improvement initiatives, including employee safety. The plant was acquired by CRH in 2015.



## Memorandum and Articles of Association - continued

- any proposal in which the Director is interested concerning the underwriting of Company shares, debentures or other securities;
- any other proposal concerning any other company in which the Director is interested, directly or indirectly (whether as an officer, shareholder or otherwise) provided that the Director is not the holder of 1% or more of the voting interest in the shares of such company; and
- proposals concerning the modification of certain retirement benefits under which the Director may benefit and which have been approved or are subject to approval by the Irish Revenue Commissioners

The Directors may exercise all the powers of the Company to borrow money, except that such general power is restricted to the aggregate amount of principal borrowed less cash balances of the Company and its subsidiaries not exceeding an amount twice the aggregate of (a) the share capital of the Company; and (b) the amount standing to the credit of retained income, foreign currency translation reserve and other reserves, capital grants, deferred taxation and non-controlling interest; less any repayable government grants; less (c) the aggregate amount of Treasury Shares and own shares held by the Company.

The Company in general meeting from time to time determines the fees payable to the Directors. The Board may grant special remuneration to any of its number who being called upon, shall render any special or extra services to the Company or go or reside abroad in connection with the conduct of any of the affairs of the Company.

The qualification of a Director is the holding alone and not jointly with any other person of 1,000 Ordinary Shares in the capital of the Company.

### Voting Rights

The Articles provide that, at shareholders' meetings, holders of Ordinary Shares, either in person or by proxy, are entitled on a show of hands to one vote and on a poll to one vote per share. No member is entitled to vote at any general meeting unless all calls or other sums immediately payable in respect of their shares in the Company have been paid.

### Laws, Decrees or other Regulations

There are no restrictions under the Memorandum and Articles of Association of the Company or under Irish law that limit the right of non-Irish residents or foreign owners freely to hold their Ordinary Shares or to vote their Ordinary Shares.

### Liquidation Rights/Return of Capital

In the event of the Company being wound up, the liquidator may, with the sanction of a shareholders' special resolution, divide among the holders of the Ordinary Shares the whole or any part of the net assets of the Company (after the return of capital and payment of accrued dividends on the preference shares) in cash or in kind, and may set such values as he deems fair upon any property to be so divided and determine how such division will be carried out. The liquidator may, with a like sanction, vest such assets in trust as he thinks fit, but no shareholders will be compelled to accept any shares or other assets upon which there is any liability.

### Variation in Class Rights

Subject to the provisions of the Companies Act 2014, the rights attached to any class of shares may be varied with the consent in writing of the holders of not less than three fourths in nominal value of the issued shares of that class, or with the sanction of a special resolution passed at a separate general meeting of the holders of those shares.

### Issue of Shares

Subject to the provisions of the Companies Act 2014 and the Articles of Association, the issue of shares is at the discretion of the Directors.

### Dividends

Shareholders may by ordinary resolution declare final dividends and the Directors may declare interim dividends but no final dividend may be declared in excess of the amount recommended by the Directors and no dividend may be paid otherwise than out of income available for that purpose in accordance with the Companies Act 2014. There is provision to offer scrip dividends in lieu of cash. The preference shares rank for fixed rate dividends in priority to the Ordinary and Income Shares for the time being of the Company. Any dividend which has remained unclaimed for 12 years from the date of its declaration shall, if the Directors so decide, be forfeited and cease to remain owing by the Company.

### Meetings

Shareholder meetings may be convened by majority vote of the Directors or requisitioned by shareholders holding not less than 5% of the voting rights of the Company. A quorum for a general meeting of the Company is constituted by five or more shareholders present in person and entitled to vote. The passing of resolutions at a meeting of the Company, other than special resolutions, requires a simple majority. A special resolution, in respect of which not less than 21 clear days' notice in writing must be given,

requires the affirmative vote of at least 75% of the votes cast.

### Disclosure of Shareholders' Interests

A shareholder may lose the right to vote by not complying with any statutory notice or notice pursuant to Article 14 of the Articles of Association given by the Company requiring an indication in writing of: (a) the capacity in which the shares are held or any interest therein; (b) the persons who have an interest in the shares and the nature of their interest; or (c) whether any of the voting rights carried by such shares are the subject of any agreement or arrangement under which another person is entitled to control the shareholder's exercise of these rights.

### Preference Shares

Details of the 5% and 7% 'A' Cumulative Preference Shares are disclosed in note 30 to the Consolidated Financial Statements.

### Use of Electronic Communication

Whenever the Company, a Director, the Secretary, a member or any officer or person is required or permitted by the Articles of Association to give information in writing, such information may be given by electronic means or in electronic form, whether as electronic communication or otherwise, provided that the electronic means or electronic form has been approved by the Directors.

### 2018 Changes

At the AGM to be held on 26 April 2018, the approval of shareholders will be sought for a proposed change to the Memorandum and Articles of Association, as follows:

Resolution 13 is a special resolution, which, if approved, will provide the Directors with important flexibility regarding the mechanism for setting the price for scrip dividend offers. Under the existing provisions of Article 137(b)(ii) the scrip price must be set by reference to the average price of an Ordinary Share on each of the first three business days on which the Ordinary Shares are quoted "ex" the relevant dividend. There can be circumstances where setting the price using this methodology may not be appropriate or in the best interests of shareholders. In such situations the only option currently open to the Board is to not make or cancel a scrip offer. The amendment will also provide the Board with flexibility in relation to the way in which the scrip dividend alternative plan is operated.

## General Information

### Electronic Communications

Following the introduction of the 2007 Transparency Regulations, and in order to adopt a more environmentally friendly and cost effective approach, the Company provides the Annual Report and Form 20-F to shareholders electronically via the CRH website, [www.crh.com](http://www.crh.com), and only sends a printed copy to those shareholders who specifically request a copy. Shareholders who choose to do so can receive other shareholder communications, for example, notices of general meetings and shareholder circulars, electronically. However, shareholders will continue to receive printed proxy forms, dividend documentation and, if the Company deems it appropriate, other documentation by post. Shareholders can alter the method by which they receive communications by contacting the Registrars.

### CRH Website

Information on or accessible through our website, [www.crh.com](http://www.crh.com), other than the item identified as the Annual Report and Form 20-F, does not form part of and is not incorporated into the Company's Annual Report on Form 20-F as filed with the SEC (the "Form 20-F"). References in this document to other documents on the CRH website, such as the CRH Sustainability Report, are included only as an aid to their location and are not incorporated by reference into the Form 20-F. The Group's website provides the full text of the Form 20-F, which is filed annually with the SEC, interim reports, trading updates, copies of presentations to analysts and investors and circulars to shareholders. News releases are made available in the News & Events section of the website, immediately after release to the Stock Exchanges.

### Financial Calendar

Announcement of final results for 2017	1 March 2018
Ex-dividend date	8 March 2018
Record date for dividend	9 March 2018
Latest date for receipt of scrip forms	18 April 2018
Annual General Meeting	26 April 2018
Dividend payment date and first day of dealing in scrip dividend shares	4 May 2018
Further updates to the calendar can be found on <a href="http://www.crh.com">www.crh.com</a>	

### Electronic Proxy Voting

Shareholders may lodge a proxy form for the 2018 AGM electronically by accessing the Registrars' website as described below.

CREST members wishing to appoint a proxy via CREST should refer to the CREST Manual and the notes to the Notice of the AGM.

### Registrars

Enquiries concerning shareholdings should be addressed to the Registrars:

Link Asset Services  
(formerly Capita Asset Services),  
P.O. Box 7117,  
Dublin 2, Ireland.  
Telephone: +353 (0) 1 553 0050  
Fax: +353 (0) 1 224 0700  
Website: [www.linkassetservices.com](http://www.linkassetservices.com)

Shareholders with access to the internet may check their accounts by logging onto [www.signalshares.com](http://www.signalshares.com) (formerly [www.capitashareportal.com](http://www.capitashareportal.com)), selecting CRH plc and registering for the share portal. Shareholders should note that they will need to have their Investor Code (found on their share certificate) and follow the instructions online to register. This facility allows shareholders to check their shareholdings and dividend payments, register e-mail addresses, appoint proxies electronically and download standard forms required to initiate changes in details held by the Registrars. Shareholders will need to register for a User ID before using some of the services.

### American Depositary Receipts

The ADR programme is administered by the Bank of New York Mellon and enquiries regarding ADRs should be addressed to:

BNY Mellon Shareowner Services,  
P.O. Box 505000, Louisville,  
KY 40233-5000, U.S.A.  
Telephone: Toll Free Number  
US residents: 1-888-269-2377  
International: +1 201-680-6825  
E-mail: [shrrelations@cpushareownerservices.com](mailto:shrrelations@cpushareownerservices.com)  
Website: [www.mybnymdr.com](http://www.mybnymdr.com)

### Frequently Asked Questions (FAQs)

The Group's website contains answers to questions frequently asked by shareholders, including questions regarding shareholdings, dividend payments, electronic communications and shareholder rights. The FAQs can be accessed in the Investors section of the website under "Equity Investors".

### Exchange Controls

Certain aspects of CRH's international monetary operations outside the European Union were, prior to 31 December 1992, subject to regulation by the Central Bank of Ireland. These controls have now ceased. There are currently no Irish foreign exchange controls, or other statute or regulations that restrict the export or import of capital, that affect the remittance of dividends, other than dividend withholding tax on the Ordinary Shares, or that affect the conduct of the Company's operations.

### Principal Accountant Fees and Services

Details of auditors' fees are set out in note 4 to the Consolidated Financial Statements. For details on the audit and non-audit services pre-approval policy see Corporate Governance – External Auditors on page 64.

### Documents on Display

It is possible to read and copy documents referred to in this Form 20-F, that have been filed with the SEC at the SEC's public reference room located at 100 F Street, NE, Washington, DC 20549. Please call the SEC at 1-800-SEC-0330 for further information on the public reference rooms and their copy charges. The SEC filings are also available to the public from commercial document retrieval services and, for most recent CRH periodic filings only, at the web site maintained by the SEC at [www.sec.gov](http://www.sec.gov).





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## Principal Subsidiary Undertakings as at 31 December 2017

### Europe Heavyside

Incorporated and operating in	% held	Products and services
Belgium	Douterloigne N.V.	100 Concrete floor elements, pavers and blocks
	Ergon N.V.	100 Precast concrete and structural elements
	Oeterbeton N.V.	100 Precast concrete
	Prefaco N.V.	100 Precast concrete structural elements
	Remacle S.A.	100 Precast concrete products
	Scheffhout N.V.	100 Precast concrete wall elements
	VMM N.V.	100 Cement transport and trading, readymixed concrete, clinker grinding
Britain & Northern Ireland	Northstone (NI) Limited (including Farrans Construction Limited, Materials and Cubis divisions)	100 Aggregates, readymixed concrete, mortar, coated macadam, rooftiles, building and civil engineering contracting
	Premier Cement Limited	100 Marketing and distribution of cement
	Tarmac Aggregates Limited	100 Aggregates, asphalt, readymixed concrete and contracting
	Tarmac Building Products Limited	100 Building products
	Tarmac Cement and Lime Limited	100 Cement and lime
Czech Republic	Tarmac Trading Limited	100 Aggregates, asphalt, cement, readymixed concrete and contracting
	Vápenka Vitosov s.r.o	75 Production of lime and lime products
Denmark	Betongruppen RBR A/S	100 Concrete paving manufacturer
	CRH Concrete A/S	100 Structural concrete products
Finland	Finnsementti Oy	100 Cement
	Rudus Oy	100 Aggregates, readymixed concrete and concrete products
France & La Réunion	Eqiom	99.99 Aggregates, asphalt, cement and readymixed concrete
	L'industrielle du Béton S.A.*	100 Structural concrete products
	Stradal	100 Utility and infrastructural concrete products
	Teralta Ciment Reunion*	82.90 Cement
	Teralta Granulat Beton Reunion*	93.33 Aggregates, readymixed concrete
	Fels Holding Company GmbH	100 Holding company
	Fels Netz GmbH	100 Logistics and owned railway infrastructure operator
Germany	Fels Vertriebs und Service GmbH & Co. KG.	100 Lime and limestone, development of new products
	Fels-Werke GmbH	100 Production and sale of lime and limestone
	Opterra GmbH	100 Cement
Hungary	CRH Magyarország Kft.	100 Cement and readymixed concrete
	Ferrobeton Beton-és Vasbetonelem gyártó Zrt.	100 Precast concrete structural elements
	Clogrennane Lime Limited	100 Burnt and hydrated lime
Ireland	Irish Cement Limited	100 Cement
	Roadstone Limited	100 Aggregates, readymixed concrete, mortar, coated macadam, concrete blocks and pipes, asphalt, agricultural and chemical limestone and contract surfacing
Netherlands	Calduran Kalkzandsteen B.V.	100 Sand-lime bricks and building elements
	Cementbouw B.V.	100 Cement transport and trading, readymixed concrete and aggregates
	CRH Structural Concrete B.V.	100 Precast concrete structural elements
	Dycore B.V.	100 Concrete flooring elements

### Europe Heavyside

Incorporated and operating in	% held	Products and services
Poland	Bosta Beton Sp. z o.o.	90.30 Readymixed concrete
	Drogomex Sp. z o.o.*	99.94 Asphalt and contract surfacing
	Grupa Ożarów S.A.	100 Cement
	Grupa Śliskaty Sp. z o.o.	99.19 Sand-lime bricks
	Masfalt Sp. z o.o.*	100 Asphalt and contract surfacing
	Trzuskawica S.A.	100 Production of lime and lime products
	CRH Agregate Betoane S.A.	98.59 Readymixed concrete
Romania	CRH Ciment (Romania) S.A.	98.62 Cement
	Elpreco S.A.	100 Architectural concrete products
	Ferrobeton Romania SRL	100 Structural concrete products
Russia	LLC Fels Izvest	100 Production of lime and lime products
Serbia	CRH (Srbija) d.o.o.	100 Cement
Slovakia	CRH (Slovensko) a.s.	99.70 Cement and readymixed concrete
Spain	Beton Catalan S.A.	100 Readymixed concrete
	Cementos Lemona S.A.	98.75 Cement
Switzerland	JURA-Holding AG	100 Cement, aggregates and readymixed concrete
Ukraine	LLC Cement*	100 Cement and clinker grinding
	PJSC Mykolaivcement	99.27 Cement
	Podilsky Cement PJSC	99.60 Cement

### Europe Lightside

Australia	Ancon Building Products Pty Ltd	100 Construction accessories
	Plakabeton N.V.	100 Construction accessories
Belgium	Marlux N.V.	100 Concrete paving and landscaping products
	Stradus Infra N.V.	100 Concrete paving and landscaping products
	Ancon Limited	100 Construction accessories
Britain & Northern Ireland	Anchor Bay Construction Products Limited*	100 Construction accessories
	CRH Fencing & Security Group (UK) Limited	100 Security fencing
	Security Windows Shutters Limited	100 Physical security, industrial and garage doors, roofing systems
France	Plaka Group France S.A.S.	100 Construction accessories
	Marlux	100 Concrete paving manufacturer
	Alulux GmbH*	100 Roller shutter and awning systems
Germany	EHL AG	100 Concrete paving and landscape walling products
	ERHARDT Markisenbau GmbH*	100 Roller shutter and awning systems
	Halfen GmbH	100 Construction accessories
	Heras Deutschland GmbH	100 Security fencing and access control
	Tenbrink Rolladensysteme GmbH	100 Roller shutter and awning systems



## Principal Subsidiary Undertakings - continued

as at 31 December 2017

### Europe Lightside - continued

Incorporated and operating in	% held	Products and services
<b>Ireland</b>		
Cubis Industries Limited	100	Supplier of access chambers and ducting products
B.V. Aluminium Verkoop Zuid	100	Roller shutter and awning systems
<b>Netherlands</b>		
Heras B.V.	100	Security fencing and perimeter protection
Struyk Verwo Groep B.V.	100	Concrete paving products
<b>Poland</b>		
Polbruk S.A.	100	Concrete paving products
<b>Slovakia</b>		
Premac, spol. s.r.o.	100	Concrete paving and floor elements
<b>Sweden</b>		
Heras Stångsäl AB	100	Security fencing
<b>Switzerland</b>		
F.J. Aschwanden AG*	100	Construction accessories
<b>United States</b>		
Halfen USA Inc.	100	Construction accessories

### Europe Distribution

<b>Austria</b>		
Quester Baustoffhandel GmbH	100	Builders merchants
Creyns N.V.	99.36	Builders merchants
BMB Bouwmaterialen BVBA	100	Builders merchants
Lambrechts N.V.	100	Builders merchants
<b>Belgium</b>		
Sax Sanitair N.V.	100	Sanitary ware, heating and plumbing
Schrauwen Sanitair en Verwarming N.V.	100	Sanitary ware, heating and plumbing
Van Den Broeck BVBA	100	Builders merchants
Van Neerbos België N.V.	100	DIY stores
CRH Ile-de-France Distribution*	100	Builders merchants
<b>France</b>		
CRH Normandie Distribution	100	Builders merchants
CRH TP Distribution	100	Builders merchants
<b>Germany</b>		
Andreas Paulsen GmbH	100	Sanitary ware, heating and plumbing
BauKing AG	100	Builders merchants, DIY stores
CRH Bouwmaten B.V.	100	Cash & Carry building materials
<b>Netherlands</b>		
BMN   Bouwmaterialen B.V.	100	Builders merchants
Van Neerbos Bouwmarkten B.V.	100	DIY stores
<b>Switzerland</b>		
BR Bauhandel AG (trading as BauBedarf and Richner)	100	Builders merchants, sanitary ware and ceramic tiles
Regusci Reco S.A. (trading as Regusci and Reco)	100	Builders merchants

### Americas Materials

Incorporated and operating in	% held	Products and services
<b>Canada</b>		
CRH Canada Group Inc.	100	Aggregates, asphalt, cement and readymixed concrete and provider of construction services
APAC Holdings, Inc. and Subsidiaries	100	Aggregates, asphalt, readymixed concrete and related construction activities
Callanan Industries, Inc.	100	Aggregates, asphalt, readymixed concrete and related construction activities
CPM Development Corporation	100	Aggregates, asphalt, readymixed concrete, prestressed concrete and related construction activities
Dolomite Products Company, Inc.	100	Aggregates, asphalt, readymixed concrete and related construction activities
Michigan Paving and Materials Company	100	Aggregates, asphalt and related construction activities
Mountain Enterprises, Inc.	100	Aggregates, asphalt and related construction activities
Mulzer Crushed Stone	100	Aggregates, asphalt, readymixed concrete, aggregates distribution and related construction activities
Oldcastle Materials, Inc.	100	Holding company
Oldcastle SW Group, Inc.	100	Aggregates, asphalt, readymixed concrete and related construction activities
<b>United States</b>		
OMG Midwest, Inc.	100	Aggregates, asphalt, readymixed concrete and related construction activities
Pennsy Supply, Inc.	100	Aggregates, asphalt, readymixed concrete and related construction activities
Pike Industries, Inc.	100	Aggregates, asphalt, readymixed concrete and related construction activities
P.J. Keating Company	100	Aggregates, asphalt and related construction activities
Preferred Materials, Inc.	100	Aggregates, asphalt, readymixed concrete, aggregates distribution and related construction activities
Staker & Parson Companies	100	Aggregates, asphalt, readymixed concrete and related construction activities
Suwannee American Cement	100	Cement
Tilcon Connecticut Inc.	100	Aggregates, asphalt, readymixed concrete and related construction activities
Tilcon New York Inc.	100	Aggregates, asphalt and related construction activities
The Shelly Company	100	Aggregates, asphalt, readymixed concrete and related construction activities
Trap Rock Industries, LLC*	60	Aggregates, asphalt and related construction activities
West Virginia Paving, Inc.	100	Aggregates, asphalt and related construction activities
<b>Brazil</b>		
CRH Brasil Participações S.A.	100	Holding company
CRH Sudeste Indústria de Cimentos S.A.	100	Cement





## Principal Subsidiary Undertakings - continued as at 31 December 2017

### Americas Products

Incorporated and operating in	% held	Products and services
Canada		
Oldcastle BuildingEnvelope™ Canada, Inc.	100	Custom fabricated and tempered glass products and curtain wall
Oldcastle Building Products Canada, Inc. (trading as Techniseal, Expocrete Concrete Products, Groupe Permacon, Oldcastle Enclosure Solutions and Transpave)	100	Specialty masonry, hardscape and patio products, utility boxes and trench systems
Advanced Environmental Recycling Technologies, Inc.	100	Composite building products
Americas Products & Distribution, Inc.	100	Holding company
CRH America, Inc.	100	Holding company
CRH America Finance, Inc.	100	Holding company
C.R. Laurence Co., Inc.	100	Fabrication and distribution of custom hardware products for the glass industry
Meadow Burke, LLC	100	Concrete accessories
Oldcastle, Inc.	100	Holding company
Oldcastle APG Northeast, Inc. (trading principally as Anchor Concrete Products and Trenwyth Industries)	100	Specialty masonry, hardscape and patio products
Oldcastle APG South, Inc. (trading principally as Adams Products, Georgia Masonry Supply, Northfield Block Company, Anchor Block and Oldcastle Coastal)	100	Specialty masonry, hardscape and patio products
Oldcastle APG West, Inc. (trading principally as Amcor Masonry Products, Central Pre-Mix Concrete Products, Jewell Concrete, Miller Rhino Materials, Sierra Building Products and Superlite Block)	100	Specialty masonry and stone products, hardscape and patio products
Oldcastle Architectural, Inc.	100	Holding company
Oldcastle BuildingEnvelope™, Inc.	100	Custom fabricated architectural glass
Oldcastle Building Products, Inc.	100	Holding company
Oldcastle Lawn & Garden, Inc.	100	Patio products, bagged stone, mulch and stone
Oldcastle Precast, Inc.	100	Precast concrete products, concrete pipe, prestressed plank and structural elements
United States		

### Americas Distribution

United States (i)		
Allied Building Products Corp.	100	Distribution of roofing, siding and related products, wallboard, metal studs, acoustical tile and grid
Oldcastle Distribution, Inc.	100	Holding company

(i) In August 2017, the Group entered into a sales agreement with Beacon Roofing Supply, Inc. to dispose of its 100% holding in Allied Building Products Corp. The transaction closed on 2 January 2018.

### Asia

Philippines (ii)		
Republic Cement & Building Materials, Inc.	40	Cement
Republic Cement Land & Resources Inc.	40	Cement and Building Materials

(ii) 55% economic interest in the combined Philippines business (see note 32 to the Consolidated Financial Statements).

## Principal Equity Accounted Investments as at 31 December 2017

### Europe Heavyside

Incorporated and operating in	% held	Products and services
Ireland		
Kemek Limited*	50	Commercial explosives

### Europe Distribution

France		
Samse S.A.*	21.13	Builders merchants and DIY stores
Netherlands		
Bouwmateriëlehandel de Schelde B.V.	50	DIY stores
Intergamma B.V.	47.83	DIY franchisor
Portugal		
Modelo Distribuição de Materiais de Construção S.A.*	50	DIY stores

### Asia

China		
Jilin Yatai Group Building Materials Investment Company Limited*	26	Cement
India		
My Home Industries Limited	50	Cement

### Americas Materials

Canada		
Blackbird Infrastructure 407 General Partnership*	50	Special-purpose entity on highway infrastructure construction
American Asphalt of West Virginia, LLC*	50	Asphalt and related construction activities
American Cement Company, LLC*	50	Cement
Buckeye Ready Mix, LLC*	45	Readymixed concrete
United States		
Cadillac Asphalt, LLC*	50	Asphalt
HMA Concrete, LLC*	50	Readymixed concrete
Piedmont Asphalt, LLC*	50	Asphalt
Southside Materials, LLC*	50	Aggregates

\* Audited by firms other than Ernst & Young

Pursuant to Sections 314-316 of the Companies Act, 2014, a full list of subsidiaries, joint ventures and associated undertakings will be annexed to the Company's Annual Return to be filed in the Companies Registration Office in Ireland.



## Exhibits

The following documents are filed in the SEC's EDGAR system, as part of this Annual Report on Form 20-F, and can be viewed on the SEC's website.

1.	Memorandum and Articles of Association.*
2.1	Amended and Restated Deposit Agreement dated 28 November 2006, between CRH plc and The Bank of New York Mellon.**
2.2	Multicurrency Revolving Facility Agreement originally dated 11 June 2014 (as amended and restated by an Amendment and Restatement Agreement dated 7 April 2017).†
7.	Computation of Ratios of Earnings to Fixed Charges.
8.	Listing of principal subsidiary undertakings and equity accounted investments (included on pages 246 to 251 of this Annual Report and Form 20-F).
12.	Certifications of Chief Executive Officer and Chief Financial Officer pursuant to Section 302 of the Public Company Accounting Reform and Investor Protection Act of 2002.
13.	Certifications of Chief Executive Officer and Chief Financial Officer pursuant to Section 906 of the Public Company Accounting Reform and Investor Protection Act of 2002.****
15.1	Consent of Independent Registered Public Accounting Firm.
15.2	Governance Appendix.
15.3	2016 Directors' Remuneration Policy.***
16.	Disclosure of Mine Safety and Health Administration ("MSHA") Safety Data.
101.	eXtensible Business Reporting Language (XBRL).

\* Incorporated by reference to Annual Report on Form 20-F for the year ended 31 December 2015 that was filed by the Company on 16 March 2016.

\*\* Incorporated by reference to Annual Report on Form 20-F for the year ended 31 December 2006 that was filed by the Company on 3 May 2007.

\*\*\* Incorporated by reference to Annual Report on Form 20-F for the year ended 31 December 2016 that was filed by the Company on 10 March 2017.

\*\*\*\* Furnished but not filed.

† Certain terms omitted pursuant to a request for confidential treatment.

## Cross Reference to Form 20-F Requirements

This table has been provided as a cross reference from the information included in this Annual Report and Form 20-F to the requirements of this 20-F.

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## Signatures

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorised the undersigned to sign this Annual Report on its behalf.

CRH public limited company

(Registrant)

By: \_\_\_\_\_ /s/ S. Murphy

**Senan Murphy**  
Finance Director

Dated: 9 March 2018



CRH plc

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of CRH plc.

**Cover image:** Fels' Elbingerode Quarry in Saxony-Anhalt, Germany. CRH acquired Fels, a leading German lime and aggregates business, with nine production locations in Germany and one each in the Czech Republic and in the Moscow region of Russia, for €0.6 billion in 2017.

## **APPENDIX B**

### Legal Descriptions

## **TABLE OF CONTENTS**

Appendix B-1	Original Permit Area Legal Descriptions
Appendix B-2	Proposed Permit Area Legal Descriptions
Appendix B-3	Borrow Area Legal Descriptions

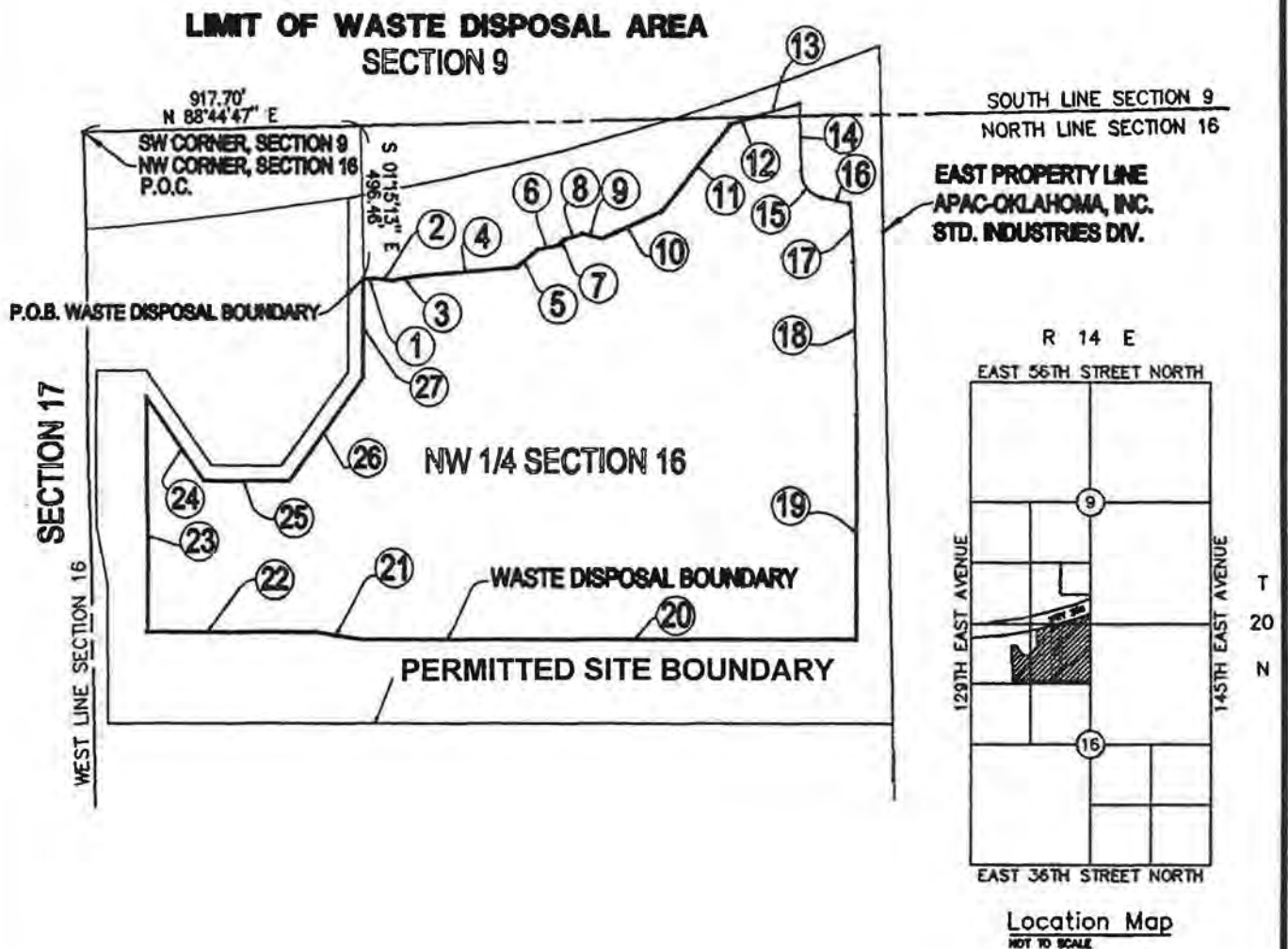
## **APPENDIX B-1**

### Original Permit Area Legal Descriptions



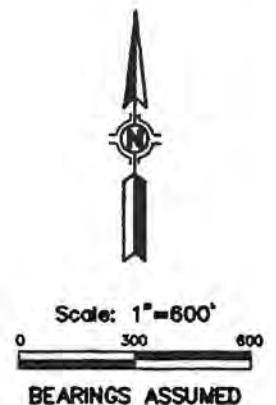
# LIMIT OF WASTE DISPOSAL AREA EXHIBIT


of part of  
**Sections 9 & 16, T-20-N, R-14-E**  
 Tulsa County, Oklahoma



## BOUNDARY CALLS

BEARING	DIST.	BEARING	DIST.	DELTA	LENGTH	RADIUS
1 N89°43'04"E	38.24'	15	-----	Δ=77°34'24"	L=121.85'	R=90.00'
2 S83°07'11"E	58.89'	16	S78°42'05"E	89.89'		
3 N79°16'18"E	86.04'	17	S03°56'38"E	190.05'		
4 N84°59'33"E	327.30'	18	S01°07'41"E	501.85'		
5 N51°18'31"E	91.40'	19	S00°09'02"W	737.64'		
6 N76°34'00"E	74.86'	20	S89°59'15"W	1,632.74'		
7 N43°51'45"E	22.81'	21	N80°32'42"W	158.06'		
8 N72°00'11"E	63.15'	22	S89°59'55"W	559.27'		
9 S74°58'13"E	84.71'	23	N00°07'49"W	767.08'		
10 N85°24'08"E	217.39'	24	S34°38'12"E	334.63'		
11 N39°22'29"E	361.54'	25	S89°54'10"E	281.52'		
12 N73°21'53"E	82.25'	26	N35°37'35"E	418.89'		
13 N73°21'53"E	159.45'	27	N00°02'43"W	323.54'		
14 S01°07'41"E	218.44'					



 <b>Sleemore Welaz &amp; Associates, Inc.</b> 601 EAST 33rd PLACE TULSA, OKLAHOMA 74105 C.A. NO. 2481				PHONE: 918 685-0500 FAX: 918 685-0555 BOP. DATE: 6/30/03	
FILE:		SURVEY BY:	N/A	DATE:	12/18/2001
ORDER:	12763	DRAWN BY:	CDC	SCALE:	1"=600'
BOOK:	N/A	CHECKED BY:		SHEET	1 OF 4

# LIMIT OF WASTE DISPOSAL AREA EXHIBIT

of part of  
**Sections 9 & 16, T-20-N, R-14-E**  
**Tulsa County, Oklahoma**

## LIMIT OF WASTE DISPOSAL AREA LEGAL DESCRIPTION

A TRACT OF LAND THAT IS PART OF THE NORTHWEST QUARTER (NW/4) OF SECTION SIXTEEN (16) AND THE SOUTHWEST QUARTER (SW/4) OF SECTION NINE (9), TOWNSHIP TWENTY (20) NORTH, RANGE FOURTEEN (14) EAST OF THE INDIAN BASE AND MERIDIAN, TULSA COUNTY, OKLAHOMA, SAID TRACT OF LAND BEING DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID NW/4; THENCE NORTH 88°44'47" EAST ALONG THE NORTH LINE OF SAID NW/4 FOR 917.70 FEET; THENCE SOUTH 01°15'13" EAST FOR 496.46 FEET TO THE POINT OF BEGINNING OF SAID TRACT OF LAND; THENCE NORTH 89°43'04" EAST FOR 38.24 FEET; THENCE SOUTH 83°07'11" EAST FOR 58.89 FEET; THENCE NORTH 79°16'18" EAST FOR 86.04 FEET; THENCE NORTH 84°59'33" EAST FOR 327.30 FEET; THENCE NORTH 51°18'31" EAST FOR 91.40 FEET; THENCE NORTH 76°34'00" EAST FOR 74.86 FEET; THENCE NORTH 43°51'45" EAST FOR 22.81 FEET; THENCE NORTH 72°00'11" EAST FOR 63.15 FEET; THENCE SOUTH 74°58'13" EAST FOR 64.71 FEET; THENCE NORTH 65°24'08" EAST FOR 217.39 FEET; THENCE NORTH 39°22'29" EAST FOR 361.54 FEET; THENCE NORTH 73°21'53" EAST FOR 82.25 FEET TO A POINT ON THE NORTH LINE OF SAID SECTION 16 AND THE SOUTH LINE OF SAID SECTION 9; THENCE CONTINUING NORTH 73°21'53" EAST FOR 159.45 FEET; THENCE SOUTH 01°07'41" EAST FOR 218.44 FEET TO A POINT OF CURVE; THENCE SOUTHERLY AND SOUTHEASTERLY ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 90.00 FEET AND A CENTRAL ANGLE OF 77°34'24" FOR 121.85 FEET TO A POINT OF TANGENT; THENCE SOUTH 78°42'05" EAST ALONG SAID TANGENT FOR 89.89 FEET; THENCE SOUTH 03°56'38" EAST FOR 190.05 FEET; THENCE SOUTH 01°07'41" EAST FOR 501.85 FEET; THENCE SOUTH 00°09'02" WEST FOR 737.64 FEET; THENCE SOUTH 89°59'15" WEST FOR 1632.74 FEET; THENCE NORTH 80°32'42" WEST FOR 158.06 FEET; THENCE SOUTH 89°59'55" WEST FOR 559.27 FEET; THENCE NORTH 00°07'49" WEST FOR 767.08 FEET; THENCE SOUTH 34°38'12" EAST FOR 334.63 FEET; THENCE SOUTH 89°54'10" EAST FOR 281.52 FEET; THENCE NORTH 35°37'35" EAST FOR 418.89 FEET; THENCE NORTH 00°02'43" WEST FOR 323.54 FEET TO THE POINT OF BEGINNING OF SAID TRACT OF LAND, CONTAINING 61.492 ACRES MORE OR LESS.

### REAL PROPERTY CERTIFICATION

WE, SISEMORE WEISZ & ASSOCIATES, INC., HEREBY CERTIFY THAT THE ATTACHED LEGAL DESCRIPTION CLOSES IN ACCORD WITH EXISTING RECORDS AND IS A TRUE REPRESENTATION OF THE REAL PROPERTY AS DESCRIBED.

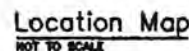
BY: *Dean Robinson*  
DEAN ROBINSON  
REGISTERED PROFESSIONAL LAND SURVEYOR  
OKLAHOMA NO. 1146

DATE: 12-18-01



<b>S&amp;A</b>		<b>Sisemore Weisz &amp; Associates, Inc.</b>	
618 EAST 22nd PLACE TULSA, OKLAHOMA 74106 CA. NO. 2421		PHONE: (918) 685-0800 FAX: (918) 685-9908 E-MAIL: DATE 8/30/00	
FILE:	SURVEY BY: N/A	DATE:	12/18/2001
ORDER:	12763	DRAWN BY: CDC	SCALE: 1"=800'
BOOK:	N/A	CHECKED BY:	SHEET 2 OF 4

of part of  
**Sections 9 & 16, T-20-N, R-14-E**  
**Tulsa County, Oklahoma**



	BEARING	DIST.	DELTA	RADIUS	LENGTH	CH.BEAR.	CHORD
1		-----	$\Delta=07^{\circ}11'20''$	R=8788.41	L=1100.18'	N76°42'44"E	C=1099.44'
2		-----	$\Delta=04^{\circ}47'47''$	R=8788.41	L=734.03'	N70°43'11"E	C=733.82'
3	S01°06'48"E	2217.52'					
4	S89°59'15"W	2599.77'					
5	N00°07'49"W	452.12'					
6	N10°55'49"W	190.77'					
7	N00°07'49"W	517.05'					
8	N89°59'15"E	166.96'					
9	S34°38'12"E	381.19'					
10	S89°54'10"E	229.61'					
11	N35°37'35"E	377.07'					
12	N00°02'43"W	573.69'					



**Scale: 1"=600'**





# PERMITTED SITE BOUNDARY EXHIBIT

of part of

## Sections 9 & 16, T-20-N, R-14-E

### Tulsa County, Oklahoma

#### PERMITTED SITE BOUNDARY LEGAL DESCRIPTION

A TRACT OF LAND THAT IS PART OF THE NORTHWEST QUARTER (NW/4) OF SECTION SIXTEEN (16) AND THE SOUTHWEST QUARTER (SW/4) OF SECTION NINE (9), TOWNSHIP TWENTY (20) NORTH, RANGE FOURTEEN (14) EAST OF THE INDIAN BASE AND MERIDIAN, TULSA COUNTY, OKLAHOMA, SAID TRACT OF LAND BEING DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID NW/4; THENCE NORTH 88°44'47" EAST ALONG THE NORTH LINE OF SAID NW/4 FOR 873.33 FEET; THENCE SOUTH 01°15'13" EAST FOR 229.23 FEET TO A POINT ON THE SOUTHERLY RIGHT OF WAY LINE OF HIGHWAY 266 AND THE POINT OF BEGINNING OF SAID TRACT OF LAND; THENCE NORTH 80°18'24" EAST FOR 0.00 FEET TO A POINT OF CURVE; THENCE NORTHEASTERLY ALONG SAID SOUTHERLY RIGHT OF WAY LINE AND ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 8768.41 FEET AND A CENTRAL ANGLE OF 07°11'20" FOR 1100.16 FEET TO A POINT ON THE NORTH LINE OF SAID SECTION 16 AND THE SOUTH LINE OF SAID SECTION 9; THENCE CONTINUING NORTHEASTERLY ALONG SAID SOUTHERLY RIGHT OF WAY LINE AND ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 8768.41 FEET AND A CENTRAL ANGLE OF 04°47'47" FOR 734.03 FEET TO A POINT ON THE EAST LINE OF SAID SW/4 OF SECTION 9; THENCE SOUTH 01°06'46" EAST ALONG SAID EAST LINE AND ALONG THE EAST LINE OF SAID NW/4 OF SECTION 16 FOR 2217.52 FEET; THENCE SOUTH 89°59'15" WEST FOR 2599.77 FEET; THENCE NORTH 0°07'49" WEST FOR 452.12 FEET; THENCE NORTH 10°55'49" WEST FOR 190.77; THENCE NORTH 0°07'49" WEST FOR 517.05 FEET; THENCE NORTH 89°59'15" EAST FOR 166.96 FEET; THENCE SOUTH 34°38'12" EAST FOR 381.19 FEET; THENCE SOUTH 89°54'10" EAST FOR 229.61 FEET; THENCE NORTH 35°37'35" EAST FOR 377.07 FEET; THENCE NORTH 0°02'43" WEST FOR 573.69 FEET TO THE POINT OF BEGINNING OF SAID TRACT OF LAND, CONTAINING 97.830 ACRES MORE OR LESS.

#### REAL PROPERTY CERTIFICATION

WE, SISEMORE WEISZ & ASSOCIATES, INC., HEREBY CERTIFY THAT THE ATTACHED LEGAL DESCRIPTION CLOSES IN ACCORD WITH EXISTING RECORDS AND IS A TRUE REPRESENTATION OF THE REAL PROPERTY AS DESCRIBED.

BY: *Dean Robinson*  
DEAN ROBINSON  
REGISTERED PROFESSIONAL LAND SURVEYOR  
OKLAHOMA NO. 1146

DATE: 12-18-01



<b>SWA</b> Sismore Weisz & Associates, Inc. 88 EAST 39th PLACE TULSA, OKLAHOMA 74105 CA. NO. 942			
PHONE: (918) 955-0800 FAX: (918) 955-0808 E-MAIL: DATE 6/30/03			
FILE:	SURVEY BY: N/A	DATE:	12/18/2001
ORDER: 12783	DRAWN BY: CDC	SCALE:	1"=600'
BOOK: N/A	CHECKED BY:	SHEET	4 OF 4

## **APPENDIX B-2**

### **Proposed Permit Area Legal Descriptions**





Engineering  
Land Surveying  
Land Planning

Sisemore Weisz & Associates, Inc.

6111 E. 32<sup>ND</sup> PLACE

TULSA, OK 74135

Voice (918) 665-3600

Fax (918) 665-8668

### WASTE DISPOSAL BOUNDARY LEGAL DESCRIPTION

A TRACT OF LAND THAT IS PART OF THE NORTHWEST QUARTER (NW/4) OF SECTION SIXTEEN (16), TOWNSHIP TWENTY (20) NORTH, RANGE FOURTEEN (14) EAST OF THE INDIAN BASE AND MERIDIAN, TULSA COUNTY, STATE OF OKLAHOMA, ACCORDING TO THE U.S. GOVERNMENT SURVEY THEREOF, SAID TRACT OF LAND BEING DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SECTION 16; THENCE SOUTH 01°05'39" EAST ALONG THE WESTERLY LINE OF THE NW/4 FOR 848.78 FEET; THENCE NORTH 88°54'21" EAST FOR 226.99 FEET TO THE POINT OF BEGINNING OF SAID TRACT OF LAND; THENCE NORTH 61°42'19" EAST FOR 388.49 FEET; THENCE NORTH 67°59'51" EAST FOR 474.23 FEET; THENCE NORTH 79°16'18" EAST FOR 86.44 FEET; THENCE NORTH 83°05'01" EAST FOR 102.42 FEET; THENCE NORTH 83°08'55" EAST FOR 75.06 FEET; THENCE NORTH 78°51'56" EAST FOR 166.98 FEET; THENCE NORTH 71°13'18" EAST FOR 140.21 FEET; THENCE NORTH 74°20'46" EAST FOR 45.33 FEET; THENCE NORTH 80°49'31" EAST FOR 105.32 FEET; THENCE NORTH 64°34'12" EAST FOR 211.78 FEET; THENCE NORTH 39°22'30" EAST FOR 165.99 FEET; THENCE NORTH 73°57'12" EAST FOR 515.20 FEET; THENCE SOUTH 04°31'49" EAST FOR 256.52 FEET; THENCE SOUTH 04°46'23" EAST FOR 63.43 FEET; THENCE SOUTH 03°32'37" EAST FOR 134.22 FEET; THENCE SOUTH 00°59'16" EAST FOR 114.52 FEET; THENCE SOUTH 01°56'06" EAST FOR 147.52 FEET; THENCE SOUTH 01°27'44" EAST FOR 56.77 FEET; THENCE SOUTH 00°11'41" WEST FOR 149.24 FEET; THENCE SOUTH 00°12'33" EAST FOR 100.00 FEET; THENCE SOUTH 00°11'47" EAST FOR 100.00 FEET; THENCE SOUTH 00°00'43" EAST FOR 100.00 FEET; THENCE SOUTH 00°06'25" WEST FOR 441.21 FEET; THENCE SOUTH 00°00'02" EAST FOR 937.64 FEET; THENCE SOUTH 88°34'25" WEST FOR 2295.52 FEET; THENCE NORTH 00°43'03" WEST FOR 1290.48 FEET; THENCE NORTH 01°05'11" WEST FOR 499.26 FEET TO THE POINT OF BEGINNING OF SAID TRACT OF LAND.

THE ABOVE DESCRIBED TRACT OF LAND CONTAINING 5,107,943 SQUARE FEET OR 117.262 ACRES, MORE OR LESS.

### WASTE DISPOSAL BOUNDARY LEGAL DESCRIPTION CERTIFICATION

I, DEAN ROBINSON, OF SISEMORE WEISZ & ASSOCIATES, CERTIFY THAT THE ATTACHED LEGAL DESCRIPTION CLOSES IN ACCORD WITH EXISTING RECORDS AND IS A TRUE REPRESENTATION OF THE WASTE DISPOSAL BOUNDARY AS DESCRIBED. THIS LEGAL DESCRIPTION MEETS THE MINIMUM STANDARDS FOR LEGAL DESCRIPTIONS AS ADOPTED BY THE OKLAHOMA STATE BOARD OF LICENSURE FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS.

6.04.18

DATE

SISEMORE WEISZ & ASSOCIATES, INC.

BY DEAN ROBINSON

DEAN ROBINSON  
REGISTERED PROFESSIONAL LAND SURVEYOR  
NO. 1146

RECEIVED 1146 STATE OF OKLAHOMA  
C. A. NO. 2421

EXPIRES 6/30/19  
OKLAHOMA

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6/04/18 agm



Engineering  
Land Surveying  
Land Planning

Sisemore Weisz & Associates, Inc.

6111 E. 32<sup>ND</sup> PLACE

TULSA, OK 74135

Voice (918) 665-3600

Fax (918) 665-8668

#### SITE PERMIT BOUNDARY LEGAL DESCRIPTION

A TRACT OF LAND THAT IS PART OF THE SOUTHWEST QUARTER (SW/4) OF SECTION NINE (9) AND PART OF THE NORTHWEST QUARTER (NW/4) OF SECTION SIXTEEN (16), TOWNSHIP TWENTY (20) NORTH, RANGE FOURTEEN (14) EAST OF THE INDIAN BASE AND MERIDIAN, TULSA COUNTY, STATE OF OKLAHOMA, ACCORDING TO THE U.S. GOVERNMENT SURVEY THEREOF, SAID TRACT OF LAND BEING DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SECTION 16, THE SAME BEING THE SOUTHWEST CORNER OF SECTION 9; THENCE SOUTH 01°05'39" EAST ALONG THE WESTERLY LINE OF THE NW/4 FOR 818.26 FEET; THENCE NORTH 88°54'21" EAST FOR 52.75 FEET TO THE POINT OF BEGINNING OF SAID TRACT OF LAND; THENCE NORTH 88°54'13" EAST FOR 124.25 FEET; THENCE NORTH 61°42'19" EAST FOR 421.75 FEET; THENCE NORTH 67°59'51" EAST FOR 339.39 FEET; THENCE NORTH 00°02'43" WEST FOR 277.50 FEET TO A POINT ON THE SOUTHERLY RIGHT-OF-WAY LINE OF HIGHWAY 266 AND A POINT OF CURVE; THENCE NORTHEASTERLY ALONG A CURVE TO THE LEFT HAVING AN INITIAL TANGENT BEARING OF NORTH 80°18'13" EAST, WITH A CENTRAL ANGLE OF 11°58'31", A RADIUS OF 8769.40 FEET, A CHORD BEARING OF NORTH 74°18'58" EAST, A CHORD DISTANCE OF 1829.55 FEET, FOR AN ARC LENGTH OF 1832.89 FEET TO A POINT ON THE EASTERLY LINE OF THE SW/4 OF SECTION 9; THENCE SOUTH 01°22'27" EAST ALONG SAID EASTERLY LINE OF THE SW/4 FOR 226.70 FEET TO THE SOUTHEAST CORNER OF SAID SW/4, THE SAME BEING THE NORTHEAST CORNER OF THE NW/4 OF SECTION 16; THENCE SOUTH 01°05'45" EAST ALONG THE EASTERLY LINE OF THE NW/4, AND ALONG THE EASTERLY LINE OF THE SW/4 OF SECTION 16, FOR 2781.69 FEET; THENCE SOUTH 88°34'25" WEST FOR 2593.27 FEET; THENCE NORTH 01°05'39" WEST PARALLEL TO THE WESTERLY LINE OF SECTION 16 FOR 1971.19 FEET TO THE POINT OF BEGINNING OF SAID TRACT OF LAND.

THE ABOVE DESCRIBED TRACT OF LAND CONTAINING 6,608,682 SQUARE FEET OR 151.714 ACRES, MORE OR LESS.

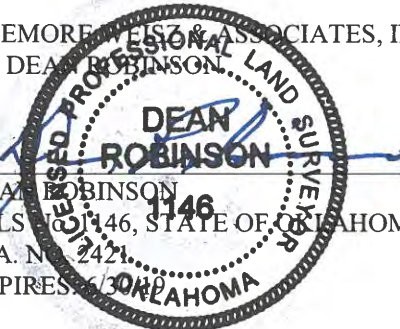
#### SITE PERMIT BOUNDARY LEGAL DESCRIPTION CERTIFICATION

I, DEAN ROBINSON, OF SISEMORE WEISZ & ASSOCIATES, CERTIFY THAT THE ATTACHED LEGAL DESCRIPTION CLOSES IN ACCORD WITH EXISTING RECORDS AND IS A TRUE REPRESENTATION OF THE SITE PERMIT BOUNDARY AS DESCRIBED. THIS LEGAL DESCRIPTION MEETS THE MINIMUM STANDARDS FOR LEGAL DESCRIPTIONS AS ADOPTED BY THE OKLAHOMA STATE BOARD OF LICENSURE FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS.

6.04.18  
DATE

SISEMORE WEISZ & ASSOCIATES, INC.  
BY DEAN ROBINSON

DEAN ROBINSON  
RPLS 1146, STATE OF OKLAHOMA  
C. A. N. 2421  
EXPIRES 6/30/2018

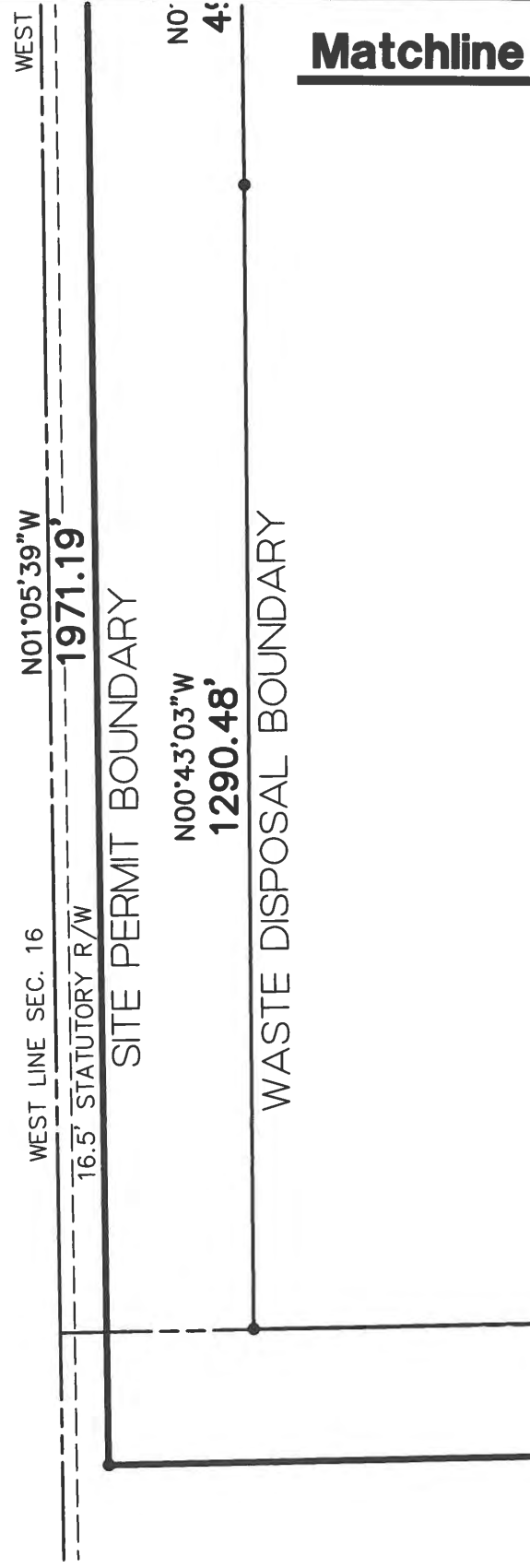




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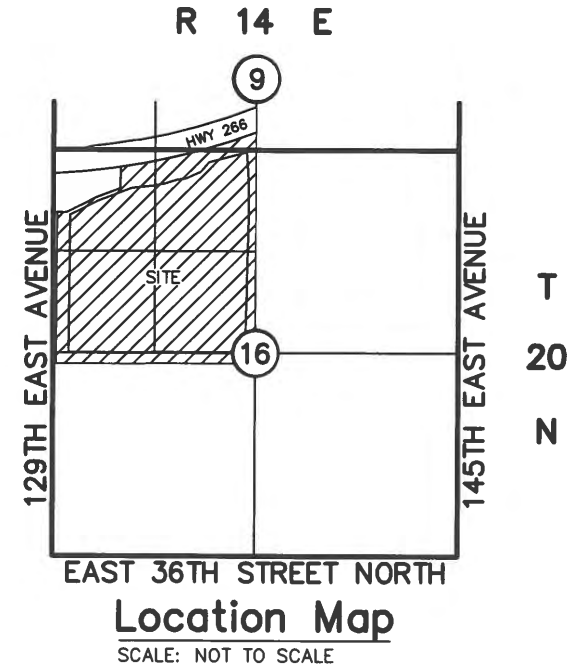
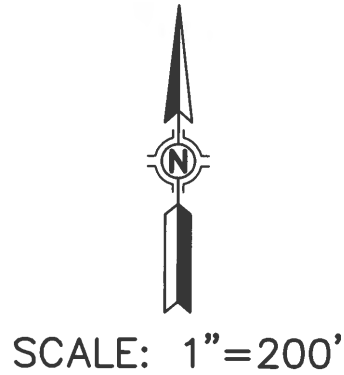
### Legend

C.A. = CENTRAL ANGLE  
C.B. = CHORD BEARING  
C.D. = CHORD DISTANCE  
L = LENGTH  
P.O.B. = POINT OF BEGINNING  
P.O.C. = POINT OF COMMENCEMENT  
R/W = RIGHT-OF-WAY



SECTION 16, T-20-N, R-14-E

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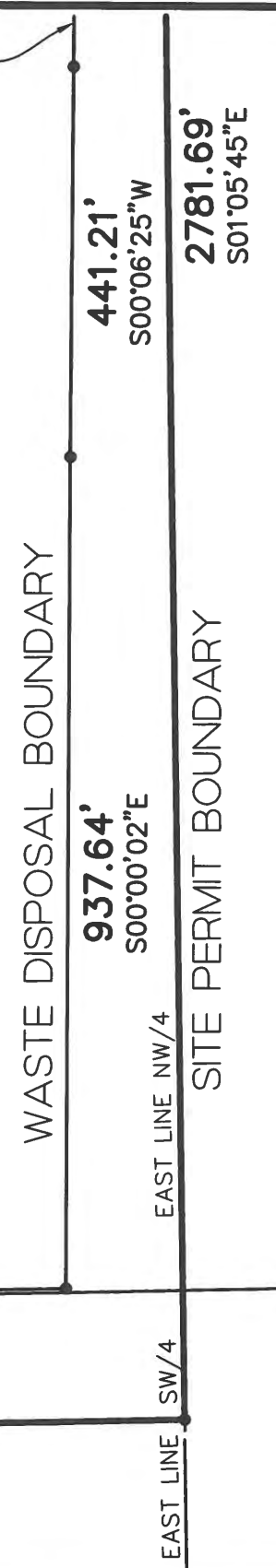
SOUTH LINE NW/4 SEC. 16  
NORTH LINE SW/4 SEC. 16

WASTE DISPOSAL BOUNDARY

2295.52'  
S88°34'25"W

SITE PERMIT BOUNDARY

2593.27'  
S88°34'25"W



### Exhibit Drawing

of

Part of Sections 9 & 16,  
T-20-N, R-14-E

City of Tulsa, Tulsa Co., State of Oklahoma



Sisemore Weisz & Associates, Inc.

6111 EAST 32nd PLACE  
TULSA, OKLAHOMA 74135  
C.A. NO. 2421

PHONE: (918) 865-3800  
FAX: (918) 865-8888  
EXP. DATE 6/30/19

FILE:	2014.1600	SURVEY BY:	DATE:	6/04/18
ORDER:	12763.30	DRAWN BY: AGM	SCALE:	1" = 200'
BOOK:		CHECKED BY: SAC	SHEET	2 OF 2

## **APPENDIX B-3**

### **Borrow Area Legal Descriptions**



Tulsa County Clerk - EARLENE WILSON  
Doc# 03024283 Pg# 3 Date 6941/1863-1865  
Receipt # 638148 02/20/03 12:37:55  
Fee 17.00



**SPECIAL WARRANTY DEED**

6941.3702(4)

6941 1863

THIS DEED OF CONVEYANCE made effective as of October 13, 2002, by and between ASHLAND INC., a Kentucky corporation having a tax mailing address of P. O. Box 14000, Lexington, Kentucky 40512, Attention: Corporate Real Estate Department, hereinafter called "GRANTOR," and APAC-OKLAHOMA, INC., a Delaware corporation having a tax mailing address of P. O. Box 14000, Lexington, Kentucky 40512, Attention: Corporate Real Estate Department, hereinafter called "GRANTEE,"

**WITNESSETH:**

THAT as a contribution by GRANTOR, to the capital of GRANTEE, a wholly owned subsidiary of GRANTOR, the receipt and adequacy of which is hereby acknowledged, GRANTOR hereby grants, bargains, sells and conveys to GRANTEE, an undivided 72.5% interest in that certain tract or parcel of land located in Tulsa County, Oklahoma and made described on Schedule A, which is attached hereto and made a part hereof, together with all buildings, structures and improvements constructed thereon,

TO HAVE AND TO HOLD the same property, as described on Schedule A, with the appurtenances, unto the GRANTEE, its successors and assigns, FOREVER.

This conveyance is made subject to all legal highways, zoning laws, ordinances and regulations and to all restrictions, easements, rights-of-way, exceptions, reservations and conditions contained in prior instruments of record in the chain of title to the property conveyed hereby.

GRANTOR, insofar as it has the legal right to do so, does further release, remise and forever quitclaim unto GRANTEE all of GRANTOR's right, title and interest, if any, in and to all roadways, streets, alleys, easements and rights-of-way adjacent to or abutting on the property conveyed hereby.

GRANTOR covenants and warrants with said GRANTEE that GRANTOR shall (except for the property quitclaimed by the immediately preceding paragraph) warrant and defend the property unto the GRANTEE, its successors and assigns, and the lawful claims of all persons claiming by, through or under GRANTOR, but no other, against the claims and demands of GRANTOR.

The terms and provisions contained herein shall be binding upon and inure to the benefit of the parties hereto, their respective successors and assigns.

Deeds-Ashland-APAC, Oklahoma 035-141-0032

First American Title & Abstract Co  
625 S. Detroit  
Tulsa, OK 74120

(2)

11

0052.

6941 1864

IN WITNESS WHEREOF, GRANTOR has caused its name to be subscribed hereto by its duly authorized officer as of the day and year first above written.

WITNESSES:

ICCZIN  
Judith O Johnson

W ASHLAND INC.  
W By: Samuel G. Mitchell Jr  
Its: Vice President

STATE OF Kentucky )  
COUNTY OF Jayette ) SS

On this 14<sup>th</sup> day of January, 2003, before me, the undersigned, a Notary Public in and for said County and State, personally appeared Samuel G. Mitchell Jr, the Vice President of ASHLAND INC., a Kentucky corporation, and that he as such Vice President being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by himself as Vice President.

Wanda Sue Priode  
My Commission Expires August 10, 2005

Wanda Sue Priode  
Notary Public

My Commission Expires: \_\_\_\_\_



This Instrument Prepared By:

David B. Mattingly  
David B. Mattingly, Attorney  
ASHLAND INC.  
3499 Blazer Parkway  
Lexington, Kentucky 40509



6941 1865

## EXHIBIT A

### LEGAL DESCRIPTION

The Northwest Quarter of the Southwest Quarter (NW  $\frac{1}{4}$  SW  $\frac{1}{4}$ ) AND the West Half of the Northeast Quarter of the Southwest Quarter (W  $\frac{1}{2}$  NE  $\frac{1}{4}$  SW  $\frac{1}{4}$ ) of Section Twenty-one (21), Township Twenty (20) North, Range Fourteen (14) East of the Indian Base and Meridian, Tulsa County, State of Oklahoma, according to the U. S. Government Survey thereof.

LESS AND EXCEPT: BEGINNING at the West Quarter Corner of Section 21; THENCE South  $89^{\circ} 50' 16.66''$  East a distance of 1991.67 feet to a point; THENCE due South a distance of 17.00 feet to a point; THENCE North  $87^{\circ} 43' 21.66''$  West a distance of 189.65 feet to a point; THENCE North  $89^{\circ} 50' 16.66''$  West a distance of 1324.54 feet to a point; THENCE due South a distance of 446.00 feet to a point; THENCE North  $89^{\circ} 50' 16.66''$  West a distance of 477.63 feet to a point on the West Line of Section 21; THENCE due North a distance of 456.00 feet to the POINT OF BEGINNING.

ALTA Owner's Policy  
Form No. 1402-92  
(10/17/92)  
Policy No. 765265  
FIRST AMERICAN TITLE INSURANCE COMPANY

**SCHEDULE A**

AMOUNT OF INSURANCE: \$440,000.00  
DATE OF POLICY: October 12, 2000 @ 2:38 P.M.  
INSURED: ASHLAND INC. 72.5% Interest and APAC-OKLAHOMA, INC. 27.5% Interest

1. Title to the fee simple estate in said land is at the effective date hereof vested in:  
**ASHLAND INC. 72.5% Interest and APAC-OKLAHOMA, INC. 27.5% Interest**
2. The land referred to in this policy is described as follows:

The Northwest Quarter of the Southwest Quarter (NW¼ SW¼) AND the West Half of the Northeast Quarter of the Southwest Quarter (W½ NE¼ SW¼) of Section Twenty-one (21), Township Twenty (20) North, Range Fourteen (14) East of the Indian Base and Meridian, Tulsa County, State of Oklahoma, according to the U.S. Government Survey thereof.

LESS AND EXCEPT: BEGINNING at the West Quarter Corner of Section 21; THENCE South 89° 50' 16.66" East a distance of 1991.67 feet to a point; THENCE due South a distance of 17.00 feet to a point; THENCE North 87° 43' 21.66" West a distance of 189.65 feet to a point; THENCE North 89° 50' 16.66" West a distance of 1324.54 feet to a point; THENCE due South a distance of 446.00 feet to a point; THENCE North 89° 50' 16.66" West a distance of 477.63 feet to a point on the West Line of Section 21; THENCE due North a distance of 456.00 feet to the POINT OF BEGINNING.

**SCHEDULE B**

This policy does not insure against loss or damage by reason of the following:

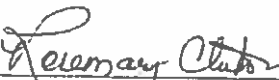
1. Easements, or claims of easements, not shown by the public records.
2. Encroachments, overlaps, boundary line disputes, or other matters which would be disclosed by an accurate survey or inspection of the premises.

035-143-0001

Page-2-  
ALTA Owner's Policy  
Policy No. 765265

3. Rights of parties in possession created by un-recorded lease agreement executed by and between APAC-Oklahoma, Inc. and Ashland, Inc.
4. Ad Valorem Tax for 2000, amount of which is not ascertainable, due or payable.
5. All interest in and to all oil, gas, coal, metallic ores or other minerals in and underlying the insured premises, together with all rights, privileges, and estates relating thereto.
6. Statutory right of way along the West property line.
7. Right of Way in favor of American Telephone and Telegraph Company of the Indian Territory filed August 12, 1931 recorded in Book 991 page 299.
8. Annexation to Tulsa, Ordinance No. 10399 filed April 7, 1966 recorded in Book 3698 page 237.
9. Easement in favor of Southwestern Bell Telephone Company filed October 20, 1966 recorded in Book 3766 page 646.
10. Right of Way Agreement in favor of Oklahoma Natural Gas Company filed April 16, 1972 recorded in Book 3964 page 862.
11. Water Easement in favor of the City of Tulsa, filed July 18, 1986 recorded in Book 4956 page 1446.
12. Water Easement in favor of the City of Tulsa filed April 12, 1988 recorded in Book 5092 page 2347.

FIRST AMERICAN TITLE & ABSTRACT COMPANY

BY:   
Rosemary Clinton OJA #13489  
Authorized Signatory #400121



## **APPENDIX C**

### Legal Right to Property Information

## **TABLE OF CONTENTS**

Appendix C-1 Property Ownership Information

Appendix C-2 Temporary Easement for Access

## **APPENDIX C-1**

### Property Ownership Information

STATE OF GEORGIA                    )  
  )  
COUNTY OF DeKalb                    )

**AFFIDAVIT OF MERGER**

Personally appeared before me William B. Miller, who being first duly sworn states as follows:

That he is the General Counsel for Oldcastle, Inc., of which APAC-Central, Inc., is an indirect, wholly owned subsidiary;

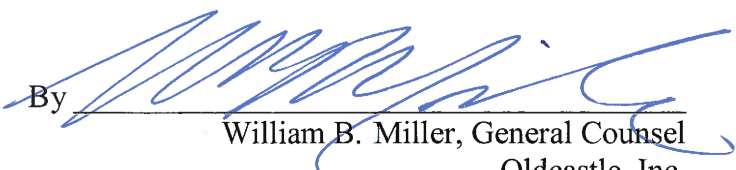
That APAC-Oklahoma, Inc., formerly Delaware corporation, was merged into APAC-Arkansas, Inc., pursuant to a certain Plan of Merger filed with the Delaware Secretary of State on December 7, 2009, and that a true and correct copy of the Certificate of Merger evidencing such merger and filed with the Oklahoma Secretary of State is attached hereto as Exhibit "A" ; and

That APAC-Arkansas, Inc., formerly a Delaware corporation, subsequently amended its name from APAC-Arkansas, Inc. to APAC-Central, Inc. effective December 26, 2009, and that a true and correct copy of the Certificate of Amendment filed with the Arkansas Secretary of State evidencing such amendment is attached hereto as Exhibit "B"; and

That pursuant to the Agreement of Merger referenced above, APAC-Central, Inc. was the surviving corporation of said merger and became the successor in interest to all property, real and personal, which was owned by APAC-Oklahoma, Inc., as of the effective date of the merger, including (but not limited to) the real estate identified in Exhibit "C" attached hereto.

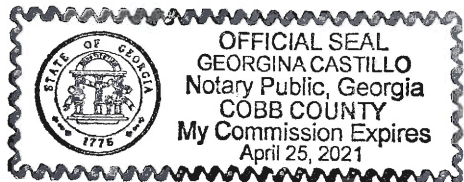
FURTHER, your Affiant sayeth not.


By \_\_\_\_\_

  
William B. Miller, General Counsel  
Oldcastle, Inc.

STATE OF GEORGIA )  
COUNTY OF DeKalb )ss:

This instrument was acknowledged before me on November 15, 2017, by William B. Miller as General Counsel for Oldcastle, Inc.



  
Notary Public in and for State of Georgia

(affix seal above)



EXHIBIT

A

OFFICE OF THE SECRETARY OF STATE



CERTIFICATE OF MERGER

WHEREAS,

APAC-CENTRAL, INC.

*a corporation organized under the laws of the State of DELAWARE,  
has filed in the office of the Secretary of State duly authenticated evidence of a merger  
whereby said corporation is the survivor, as provided by the laws of the State of Oklahoma.*

*NOW THEREFORE, I, the undersigned Secretary of State of Oklahoma, by virtue of  
the powers vested in me by law, do hereby issue this Certificate evidencing such merger.*

*IN TESTIMONY WHEREOF, I have hereunto set my hand and caused to be affixed  
the Great Seal of the State of Oklahoma.*



*Filed in the City of Oklahoma City this  
26th day of February, 2010.*

*M. Susan Savage*

*Secretary Of State*

02/26/2010 01:45 PM

OKLAHOMA SECRETARY OF STATE



SOS



13963000003

# Delaware

PAGE 1

*The First State*

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE CERTIFICATE OF MERGER, WHICH MERGES:

"APAC-OKLAHOMA, INC.", A DELAWARE CORPORATION,  
WITH AND INTO "APAC-ARKANSAS, INC." UNDER THE NAME OF  
"APAC-ARKANSAS, INC.", A CORPORATION ORGANIZED AND EXISTING  
UNDER THE LAWS OF THE STATE OF DELAWARE, WAS RECEIVED AND FILED  
IN THIS OFFICE THE SEVENTH DAY OF DECEMBER, A.D. 2009, AT 3:11  
O'CLOCK P.M.

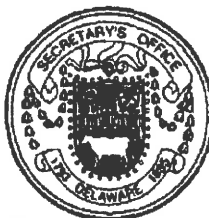
AND I DO HEREBY FURTHER CERTIFY THAT THE AFORESAID  
CORPORATION SHALL BE GOVERNED BY THE LAWS OF THE STATE OF  
DELAWARE.

AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF  
THE AFORESAID CERTIFICATE OF MERGER IS THE TWENTY-SIXTH DAY OF  
DECEMBER, A.D. 2009, AT 12:01 O'CLOCK A.M.

0893682 8330

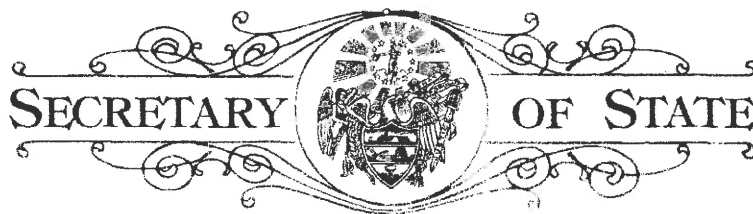
100052313

You may verify this certificate online  
at [corp.delaware.gov/authver.shtml](http://corp.delaware.gov/authver.shtml)



  
Jeffrey W. Bullock, Secretary of State  
AUTHENTICATION: 7766346

DATE: 01-20-10

**STATE OF ARKANSAS****Charlie Daniels**

SECRETARY OF STATE

To All to Whom These Presents Shall Come, Greetings:

I, Charlie Daniels, Secretary of State of Arkansas, do hereby certify that the following and hereto attached instrument of writing is a true and perfect copy of

**Articles of Amendment**

of

**APAC-ARKANSAS, INC.**

changing the name to

**APAC-CENTRAL, INC.**

filed in this office

February 5, 2010.

**In Testimony Whereof**, I have hereunto set my hand and affixed my official Seal. Done at my office in the City of Little Rock, this 5th day of February 2010.



Secretary of State



# Arkansas Secretary

Charlie Daniels

State Capitol • Little Rock  
501-682-3409 •

Document Number: 12448430002

APAC-CENTRAL, INC.

ARTICLES OF AMENDMENT

Business & Commercial Services, 250 Victory Building, 140

FILED: 02/05/10, #Pages: 3

## Application for Amended Certificate of Authority

Arkansas Secretary of State  
Business Services Division

FILL IN COMPLETELY

(Please type or print)

The undersigned pursuant to the Arkansas Business Corporation Act of 1987, (Act 958 of 1987), sets forth the following:

1. APAC-Arkansas, Inc. is a foreign corporation authorized to transact business within the State of Arkansas.

2. The Certificate of Authority should be amended as follows:

☒ Corporate name to: APAC-Central, Inc.

☐ Fictitious name to be used in Arkansas to: \_\_\_\_\_

(The corporation may use a fictitious name to transact business in Arkansas if its real name is unavailable and it delivers to the Secretary of State for filing a copy of the resolution of its Board of Directors certified by the Secretary adopting a fictitious name.)

☐ Period of Duration to: \_\_\_\_\_

☐ State or Country of incorporation to: \_\_\_\_\_

3. The state, territory or foreign country under whose laws the corporation was incorporated is: Delaware

4. Date Incorporated: 06/09/1980 Period of Duration: Perpetual

5. The nature of the business of the corporation and the object or purposes proposed to be transacted, promoted or carried on by it are: including but not limited to construction, road construction, and construction material sales

6. The name and street address of the registered agent of the corporation upon whom Service of Process is authorized to be made in Arkansas is:

124 West Capitol Avenue, Ste 1900, Little Rock, Arkansas 72201

(Street Address)

(City)

(State)

(ZIP)

7. The address of the general office or principal place of business of the corporation in the jurisdiction under whose laws the corporation was incorporated is:

1209 Orange Street, Wilmington, Delaware 19801

8. The number and par value, if any, of shares of the corporation's capital stock owned or to be owned by residents of this state: \$0.00

9. Value of assets in Arkansas: \$ 142,857,325.00 Total Value of all assets (including Arkansas): \$ 246,285,108.00

10. The foreign corporation shall deliver with the completed application an original certified copy of the amendment dated within 60 days of our receipt duly authorized by the Secretary of State or other official having custody of corporate records in the state or country under whose laws it is incorporated.

11. A filing fee of \$300.00 is submitted herewith in accordance with Act 958 of 1987.

I understand that knowingly signing a false document with the intent to file with the Arkansas Secretary of State is a Class C misdemeanor and is punishable by a fine up to \$100.00 and/or imprisonment up to 30 days.

William B. Miller, Vice President

Authorizing Officer and Title (Type or Print)

Authorized Signature

Fee: \$300.00 payable to Arkansas Secretary of State

F-01 A/Rev. 4/06

# Delaware

PAGE 1

*The First State*

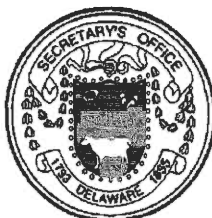
I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "APAC-ARKANSAS, INC.", CHANGING ITS NAME FROM "APAC-ARKANSAS, INC." TO "APAC-CENTRAL, INC.", FILED IN THIS OFFICE ON THE SEVENTH DAY OF DECEMBER, A.D. 2009, AT 3:44 O'CLOCK P.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF THE AFORESAID CERTIFICATE OF AMENDMENT IS THE TWENTY-SIXTH DAY OF DECEMBER, A.D. 2009, AT 12:02 O'CLOCK A.M.

0893682 8100

100040239

You may verify this certificate online  
at [corp.delaware.gov/authver.shtml](http://corp.delaware.gov/authver.shtml)



  
Jeffrey W. Bullock, Secretary of State  
AUTHENTICATION: 7758981

DATE: 01-14-10

State of Delaware  
Secretary of State  
Division of Corporations  
Delivered 03:44 PM 12/07/2009  
FILED 03:44 PM 12/07/2009  
SRV 091074996 - 0893682 FILE

**Certificate of Amendment of  
Certificate of Incorporation of  
APAC-Arkansas, Inc.**

APAC-Arkansas, Inc., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware ("the Corporation"), does hereby certify:

FIRST: By unanimous action of the Board of Directors of the Corporation, the following resolutions were duly adopted setting forth a proposed amendment of the Certificate of Incorporation of said corporation as follows:

RESOLVED, that it is advisable that the Certificate of Incorporation of the Corporation be amended by changing the Article thereof numbered First so that, as amended, said Article shall be and read as follows:

"The name of the corporation shall be APAC-Central, Inc."

FURTHER RESOLVED, that it is advisable that the Certificate of Incorporation be amended further to delete the name "APAC-Arkansas, Inc." wherever same shall appear and substitute therefor the name "APAC-Central, Inc."

SECOND: That APAC Holdings, Inc., the sole stockholder of the Corporation, approved the amendments to the Certificate of Incorporation proposed by the Corporation's Board of Directors.

THIRD: That said amendment was duly adopted in accordance with the provisions of Section 242 of the General Corporation Law of the State of Delaware.

FOURTH: That the capital of said corporation shall not be reduced under or by reason of said amendment.

FIFTH: That this Certificate of Amendment shall become effective on December 26, 2009, at 12:02 a.m.

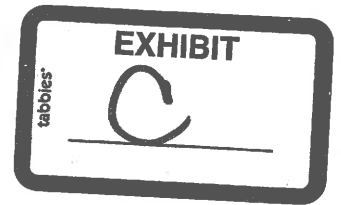
IN WITNESS WHEREOF, said APAC-Arkansas, Inc. has caused this certificate to be signed by William B. Miller, an Authorized Officer, this 30th day of November, 2009.

APAC-ARKANSAS, INC.



William B. Miller  
Vice President





Tulsa County Clerk - EARLENE WILSON  
Doc# 03924283 Pg# 3 Vol# 6941/1863-1865  
Receipt# 638148 02/20/03 12:37:55  
Fee 17.00



**SPECIAL WARRANTY DEED**

6941 1863

6941 1863

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**WITNESSETH:**

THAT as a contribution by GRANTOR, to the capital of GRANTEE, a wholly owned subsidiary of GRANTOR, the receipt and adequacy of which is hereby acknowledged, GRANTOR hereby grants, bargains, sells and conveys to GRANTEE, an undivided 72.5% interest in that certain tract or parcel of land located in Tulsa County, Oklahoma and made described on Schedule A, which is attached hereto and made a part hereof, together with all buildings, structures and improvements constructed thereon.

TO HAVE AND TO HOLD the same property, as described on Schedule A, with the appurtenances, unto the GRANTEE, its successors and assigns, FOREVER.

This conveyance is made subject to all legal highways, zoning laws, ordinances and regulations and to all restrictions, easements, rights-of-way, exceptions, reservations and conditions contained in prior instruments of record in the chain of title to the property conveyed hereby.

GRANTOR, insofar as it has the legal right to do so, does further release, remise and forever quitclaim unto GRANTEE all of GRANTOR's right, title and interest, if any, in and to all roadways, streets, alleys, easements and rights-of-way adjacent to or abutting on the property conveyed hereby.

GRANTOR covenants and warrants with said GRANTEE that GRANTOR shall (except for the property quitclaimed by the immediately preceding paragraph) warrant and defend the property unto the GRANTEE, its successors and assigns, and the lawful claims of all persons claiming by, through or under GRANTOR, but no other, against the claims and demands of GRANTOR.

The terms and provisions contained herein shall be binding upon and inure to the benefit of the parties hereto, their respective successors and assigns.

(Nada, Midland-APAC, Oklahoma 935 141-0052)

First American Title & Abstract Co  
625 S. Detroit  
Tulsa, OK 74120



11

0052.

694 1861 1469

IN WITNESS WHEREOF, GRANTEE has caused its name to be subscribed hereto by its duly authorized officer as of the day and year first above written.

WITNESSES:

KCZ  
Judith O Johnson

ASHLAND INC.  
WTS: Samuel G. Mitchell Jr  
As: Vice President

STATE OF Kentucky )  
COUNTY OF Jayette )

On this 14<sup>th</sup> day of January, 2003, before me, the undersigned, a Notary Public in and for said County and State, personally appeared Samuel G. Mitchell Jr the Vice President of ASHLAND INC., a Kentucky corporation, and that he as such Vice President being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by himself as Vice President.

Wanda Sue Priole  
My Commission Expires August 10, 2003

Wanda Sue Priole  
Notary Public

My Commission Expires: \_\_\_\_\_



This Instrument Prepared By

[Signature]  
David B. Masingly, Attorney  
ASHLAND INC.  
3499 Blazer Parkway  
Lexington, Kentucky 40509



5981 1865  
1969

EXHIBIT A  
LEGAL DESCRIPTION

The Northwest Quarter of the Southwest Quarter (NW  $\frac{1}{4}$  SW  $\frac{1}{4}$ ) AND the West Half of the Northeast Quarter of the Southwest Quarter (W  $\frac{1}{2}$  NE  $\frac{1}{4}$  SW  $\frac{1}{4}$ ) of Section Twenty-one (21), Township Twenty (20) North, Range Fourteen (14) East of the Indian Base and Meridian, Tulsa County, State of Oklahoma, according to the U. S. Government Survey thereof.

LESS AND EXCEPT: BEGINNING at the West Quarter Corner of Section 21; THENCE South  $89^{\circ} 50' 16.66''$  East a distance of 1991.67 feet to a point; THENCE due South a distance of 17.00 feet to a point; THENCE North  $87^{\circ} 43' 21.66''$  West a distance of 189.65 feet to a point; THENCE North  $89^{\circ} 50' 16.66''$  West a distance of 1324.54 feet to a point; THENCE due South a distance of 446.00 feet to a point; THENCE North  $89^{\circ} 50' 16.66''$  West a distance of 477.63 feet to a point on the West Line of Section 21; THENCE due North a distance of 456.00 feet to the POINT OF BEGINNING.

## **APPENDIX C-2**

### Temporary Easement for Access



### TEMPORARY EASEMENT FOR ACCESS

Pursuant to the Oklahoma Environmental Quality Code (27A O.S. §2-1-101 *et seq.*, including the Solid Waste Management Act, the rules promulgated thereunder, and in accordance with the conditions and requirements of Permit No. 3572049, issued by the Oklahoma State Department of Health, the predecessor in interest to the Oklahoma Department of Environmental Quality (DEQ) on November 16, 2017, APAC-Central, Inc., its successors and assigns, hereinafter referred to as Grantor, does hereby grant unto the DEQ, including its contractors, employees, and its successors and assigns, the right of access for purposes of performing closure, post-closure monitoring, or corrective action in the event of default by the owner or operator. The Easement is granted over and across the following described land, situated in Tulsa County, State of Oklahoma:

**Tract 1** (the permitted area):

NE ¼ of section 16 Township 20 Range 14E; and the SW ¼ of section 16 township 20 Range 14E; and the west ½ of SE ¼ of section 20 Range 14E, more particularly described as the permitted area of APAC-Central, Inc. C&D landfill, Oklahoma Department of Environmental Quality Permit Number 3572049;

**Tract 2** (the borrow area):

The Northwest Quarter of the Southwest Quarter (NW ¼ SW ¼) and the west Half of the Northeast Quarter of the Southwest Quarter (W ½ NE ¼ SW ¼ of section 21, township 20 North, Range 14 East of the Indian base and Meridian, Tulsa County, state of Oklahoma, according to the U.S. Government Survey thereof.

This Temporary Easement for Access is given subject to the following conditions:

1. The Grantor hereby grants unto the DEQ an easement and right-of-way over and across Tract 1, above set out, for access to said Tract 1 for the purposes of conducting closure and post-closure activities and/or corrective action as prescribed by the laws of the State of Oklahoma and Rules of the DEQ;
2. The Grantor hereby grants unto the DEQ an easement and right-of-way over and across Tract 2, above set out, for access to said Tract 2 for the purposes of utilizing borrow material while performing closure and post-closure activities and/or corrective action as prescribed by the laws of the State of Oklahoma and Rules of the DEQ;
3. This Easement is temporary and shall become null and void upon certification by the DEQ that post-closure and/or corrective action has been properly completed.

This Easement shall be binding upon the heirs, successors and assigns of the parties hereto.

IN WITNESS WHEREOF, the Grantor has hereunto set its hand this 16<sup>th</sup> day of November, 2017.

K. McClanahan  
By: KEIS McClanahan  
Title: GM Oklahoma

**ACKNOWLEDGMENT**

STATE OF OKLAHOMA                    )  
  )       SS:  
COUNTY OF Tulsa                    )

Before me, the undersigned, a Notary Public within and for said County and State, on this 16 day of November, 2017, personally appeared KEIS McClanahan, to me known to be the identical person who executed the within and foregoing instrument, and acknowledged to me that he executed the same as his free and voluntary act and deed, for the uses and purposes therein set forth.

Witness my hand and official seal the date above written.

Deborah C. Martin  
Notary Public

My commission expires:

1-25-18





## **APPENDIX D**

### Location Restriction Correspondence

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Appendix D-2 Public Recreation or Natural Preservation Area Correspondence

Appendix D-3 Endangered or Threatened Species Correspondence

Appendix D-4 Public Water Supply Correspondence

Appendix D-5 Wetlands Correspondence

Appendix D-6 Airport Correspondence

## **APPENDIX D-1**

### Scenic River Correspondence



**A & M ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

10010 E. 16<sup>TH</sup> STREET  
TULSA, OKLAHOMA 74128-4713

ENGINEERING • ENVIRONMENTAL • CONSTRUCTION  
(918) 665-6575 • FAX (918) 665-6576  
EMAIL: aandm@aandmengineering.com

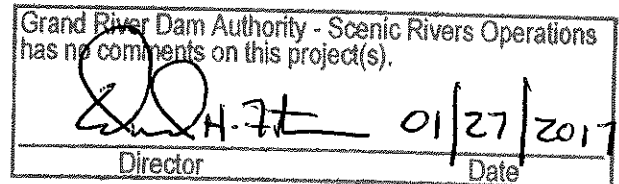
January 20, 2017



Registered Mail Return Receipt

BY: *SA*

Mr. Edward H. Fite, III  
Administrator  
Grand River Dam Authority  
Scenic Rivers Operations  
P.O. Box 292  
Tahlequah, Oklahoma 74465-0292



**RE: Scenic River Statement  
APAC East Quarry C&D Landfill Expansion  
Tulsa County, Oklahoma**

Dear Mr. Fite:

A&M Engineering and Environmental Services, Inc. (A&M Engineering) is in the process of preparing a landfill expansion permit application, on behalf of APAC-Central, Inc. (APAC), to expand the existing APAC East Quarry Construction and Demolition (C&D) Landfill located in Tulsa, Oklahoma. The existing landfill facility is located northeast of the City of Tulsa, east of 129<sup>th</sup> Street and south of State Highway 266. The proposed 55-acre lateral expansion area is located within an existing rock quarry adjacent to and south of the existing landfill permit area in the Northwest Quarter (1/4) of Section 16, Township 20 North, Range 14 East of the Indian Base and Meridian. For your reference, a General Site Location Map and Topographic Site Map are provided as Figures 1 and 2 respectively.

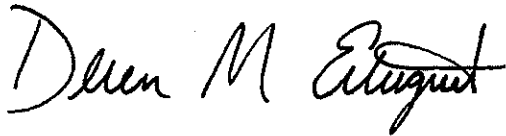
The purpose of this letter is to confirm compliance with the Oklahoma Department of Environmental Quality (DEQ) landfill location restrictions as set forth in Oklahoma Administrative Code (OAC) 252:515-5. OAC 252:515-5-3I(a) states that "no area within the permit boundary of a new solid waste disposal facility shall be located within the drainage basin of any river designated under the Oklahoma Scenic Rivers Commission Act."

A review of available information indicates that the proposed expansion area is located within the Bird Creek drainage basin and is not located within a drainage basin of a scenic river as designated by the Oklahoma Scenic Rivers Commission Act. However, in order to verify compliance, A&M Engineering and APAC are requesting a written confirmation from the Scenic Rivers Operations stating that the proposed site is not located within the drainage basin of any river designated by the Oklahoma Scenic Rivers Commission Act and that the proposed expansion is not expected to have any adverse impacts on any of the Oklahoma scenic river areas.

Mr. Edward H. Fite, III  
January 20, 2017  
Page 2 of 2

If you have any questions regarding this request, please do not hesitate to contact me by telephone at (918) 665-6575 or by email at [dertugrul@aandmengineering.com](mailto:dertugrul@aandmengineering.com). Thank you very much for your assistance with this matter.

Respectfully,  
**A&M Engineering and Environmental Services, Inc.**

A handwritten signature in black ink, reading "Deren M. Ertugrul". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

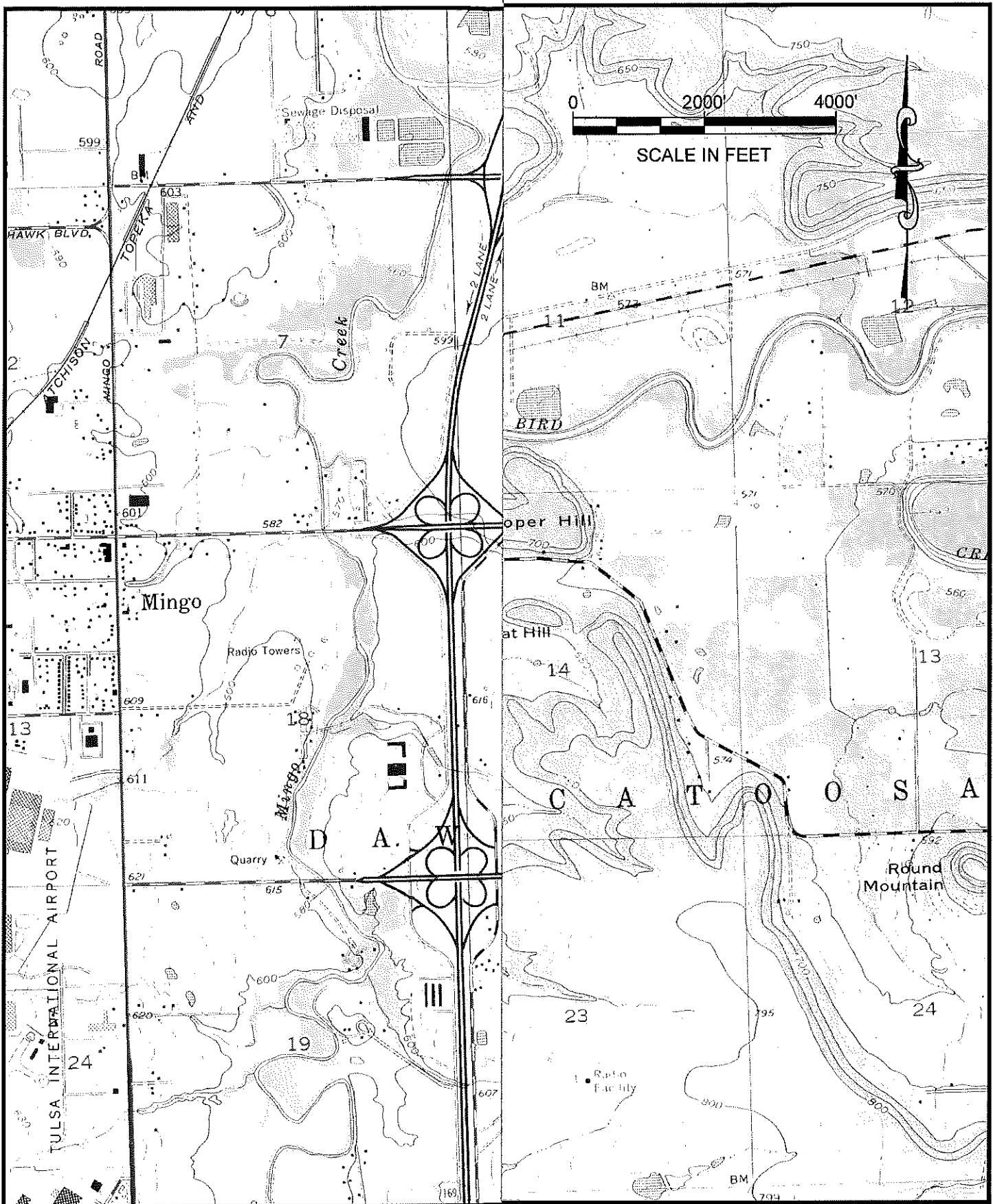
Deren M. Ertugrul, P.E.  
Project Manager

Attachment: Figures

cc: Mr. Kristopher McClanahan, APAC-Central, Inc.  
Mr. Biff Huckaby, APAC-Central, Inc.







#### GENERAL NOTES

1) BASE MAP SOURCE: USGS 7.5 MINUTE MINGO, OKLAHOMA QUADRANGLE, 1955, PHOTO REVISED 1977

SS, INC.

### TOPOGRAPHIC SITE MAP PROPOSED LANDFILL EXPANSION APAC EAST QUARRY C&D LANDFILL TULSA, OKLAHOMA

ENGINEER:	APPROVED BY: DME	SCALE:	PROJECT NUMBER:	DRAWING NUMBER:	REV.:
DATE: 11/23/2018	NOTED	1800-043	FIGURE 2		

## **APPENDIX D-2**

### **Public Recreation or Natural Preservation Area Correspondence**



**A & M ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

10010 E. 16<sup>TH</sup> STREET  
TULSA, OKLAHOMA 74128-4713

ENGINEERING • ENVIRONMENTAL • CONSTRUCTION  
(918) 665-6575 • FAX (918) 665-6576  
EMAIL: aandm@aandmengineering.com

November 22, 2016

Registered Mail Return Receipt

Ms. Lucy Dolman  
Director  
Tulsa Parks and Recreation Department  
City of Tulsa  
175 East 2<sup>nd</sup> Street, Suite 570  
Tulsa, Oklahoma 74103-3216

**RE: Public Recreation or Natural Preservation Area Statement  
APAC East Quarry C&D Landfill Expansion  
Tulsa County, Oklahoma**

Dear Ms. Dolman:

A&M Engineering and Environmental Services, Inc. (A&M Engineering) is in the process of preparing a landfill expansion permit application, on behalf of APAC-Central, Inc. (APAC), to expand the existing APAC East Quarry Construction and Demolition (C&D) Landfill located in Tulsa, Oklahoma. The existing landfill facility is located northeast of the City of Tulsa, east of 129<sup>th</sup> Street and south of State Highway 266. The proposed 55-acre lateral expansion area is located within an existing rock quarry adjacent to and south of the existing landfill permit area in the Northwest Quarter (1/4) of Section 16, Township 20 North, Range 14 East of the Indian Base and Meridian. For your reference, a General Site Location Map and Topographic Site Map are provided as Figures 1 and 2 respectively.

The purpose of this letter is to confirm compliance with the Oklahoma Department of Environmental Quality (DEQ) landfill location restrictions as set forth in Oklahoma Administrative Code (OAC) 252:515-5-31. OAC 252:515-5-31(b) states that “no area within the permit boundary of a new solid waste disposal facility, or expansion of the permit boundary of an existing solid waste disposal facility, shall be located within one-half mile of any area formally dedicated and managed for public recreation or natural preservation by a federal, state, or local government agency.”

A review of available information has not identified any public recreation or natural preservation areas within one-half mile of the proposed expansion area. The Redbud Valley Nature Preserve was identified as the nearest such facility and is located at least one-half mile from the eastern boundary of the existing landfill and proposed expansion area as shown in Figure 2. In order to verify compliance, A&M Engineering and APAC are requesting a written confirmation from the Tulsa Parks and Recreation Department stating that there are no parks and/or recreational

Ms. Lucy Dolman  
November 22, 2016  
Page 2 of 2

facilities within one-half mile of the proposed site. In the event that the Tulsa Parks and Recreation Department does manage a recreational area located within one-half mile of the site, it is requested that a statement be provided as to whether or not the proposed development would be expected to adversely affect the area.

If you have any questions regarding this request, please do not hesitate to contact me by telephone at (918) 665-6575 or by email at [dertugrul@aandmengineering.com](mailto:dertugrul@aandmengineering.com). Thank you very much for your assistance with this matter.

Respectfully,  
**A&M Engineering and Environmental Services, Inc.**

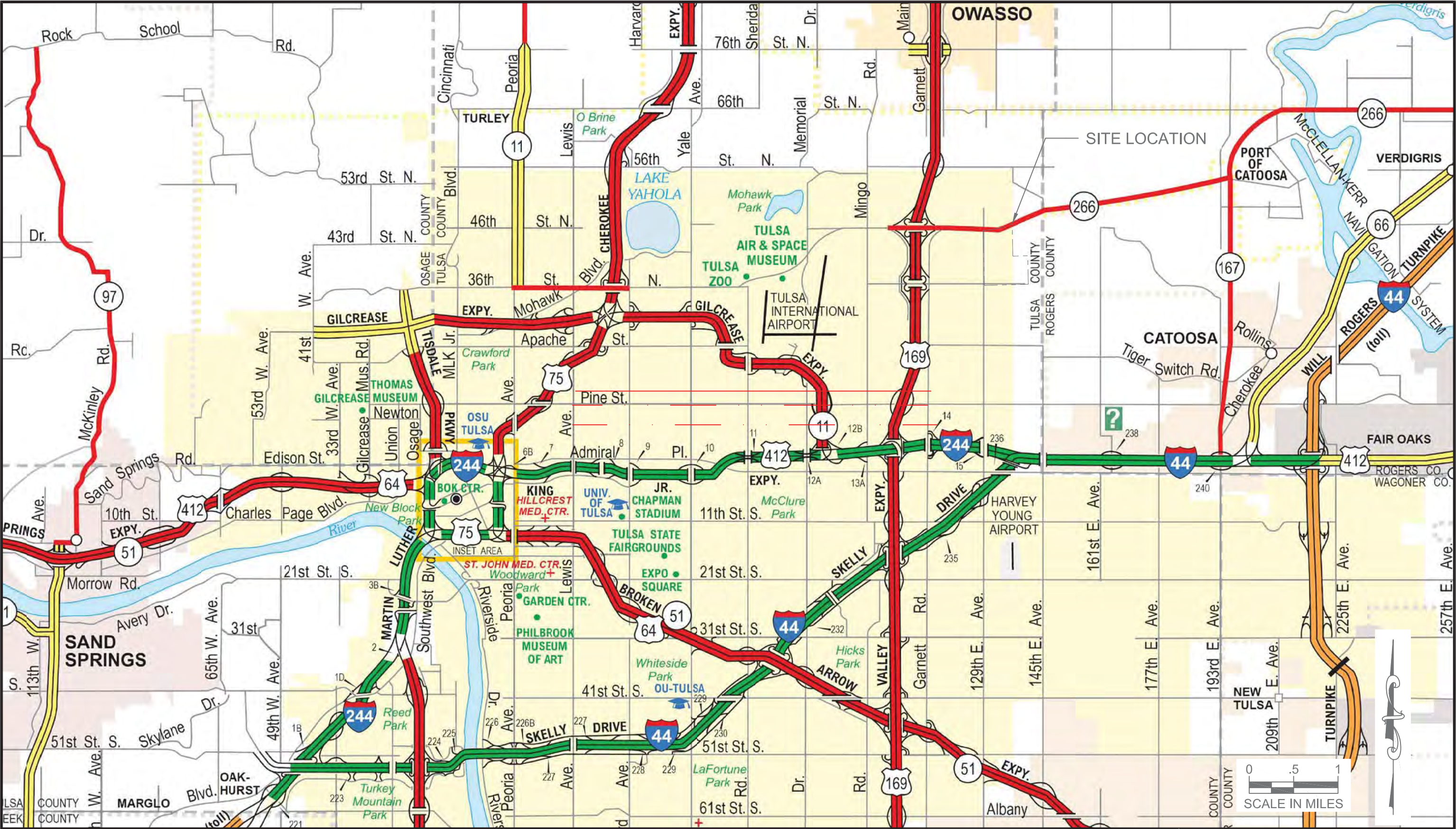
A handwritten signature in black ink, reading "Deren M. Ertugrul". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

Deren M. Ertugrul, P.E.  
Project Manager

Attachment: Figures

cc: Mr. Kristopher McClanahan, APAC-Central, Inc.  
Mr. Biff Huckaby, APAC-Central, Inc.





GENERAL NOTES		REVISIONS								A & M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.		SITE LOCATION MAP				
1) MAP FROM CITY OF TULSA WEBSITE.		NO.	DESCRIPTION	BY	CHECKED	DATE	NO.	DESCRIPTION	BY	CHECKED	DATE					
												APAC EAST QUARRY C&D LANDFILL TULSA, OKLAHOMA				
												ENGINEERING - ENVIRONMENTAL - CONSTRUCTION				
												DRAWN: PAL CHECKED BY: DME MATERIALS BY: ENGINEER: APPROVED BY: DME SCALE: PROJECT NUMBER: DRAWING NUMBER: REV:				
												DATE: 11/23/2016 DATE: 11/23/2016 DATE: DATE: DATE: DATE: 11/23/2016 NOTED 1800-043 FIGURE 1				







## SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

## 1. Article Addressed to:

Ms. Lucy Dolman  
Tulsa Parks and Recreation Dept  
City of Tulsa  
175 East 2nd Street, Ste 570  
Tulsa, OK 74103-3216



9590 9402 2448 6249 6894 55

## 2. Article Number (Transfer from service label)

7016 0750 0000 0969 1931

## COMPLETE THIS SECTION ON DELIVERY

## A. Signature

X *E. Jefferson*

☐ Agent☐ Addressee

## B. Received by (Printed Name)

*E. Jefferson*

## C. Date of Delivery

*11/28/16*

## D. Is delivery address different from item 1?

☐ YesIf YES, enter delivery address below: ☒ No

## 3. Service Type

☐ Adult Signature☐ Adult Signature Restricted Delivery☒ Certified Mail®☐ Certified Mail Restricted Delivery☐ Collect on Delivery☐ Collect on Delivery Restricted Delivery☐ Insured Mail☐ Mail Restricted Delivery☐ Priority Mail Express®☐ Registered Mail™☐ Registered Mail Restricted Delivery☒ Return Receipt for Merchandise☐ Signature Confirmation™☐ Signature Confirmation Restricted Delivery





**A & M ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

10010 E. 16<sup>TH</sup> STREET  
TULSA, OKLAHOMA 74128-4713

ENGINEERING • ENVIRONMENTAL • CONSTRUCTION  
(918) 665-6575 • FAX (918) 665-6576  
EMAIL: aandm@aandmengineering.com

November 22, 2016

Registered Mail Return Receipt

Mr. Eddie Streater  
Regional Director  
Eastern Oklahoma Regional Office  
Bureau of Indian Affairs  
P.O. Box 8002  
Muskogee, Oklahoma 74401-6201

**RE: Public Recreation or Natural Preservation Area Statement  
APAC East Quarry C&D Landfill Expansion  
Tulsa County, Oklahoma**

Dear Mr. Streater:

A&M Engineering and Environmental Services, Inc. (A&M Engineering) is in the process of preparing a landfill expansion permit application, on behalf of APAC-Central, Inc. (APAC), to expand the existing APAC East Quarry Construction and Demolition (C&D) Landfill located in Tulsa, Oklahoma. The existing landfill facility is located northeast of the City of Tulsa, east of 129<sup>th</sup> Street and south of State Highway 266. The proposed 55-acre lateral expansion area is located within an existing rock quarry adjacent to and south of the existing landfill permit area in the Northwest Quarter (1/4) of Section 16, Township 20 North, Range 14 East of the Indian Base and Meridian. For your reference, a General Site Location Map and Topographic Site Map are provided as Figures 1 and 2 respectively.

The purpose of this letter is to confirm compliance with the Oklahoma Department of Environmental Quality (DEQ) landfill location restrictions as set forth in Oklahoma Administrative Code (OAC) 252:515-5-31. OAC 252:515-5-31(b) states that “no area within the permit boundary of a new solid waste disposal facility, or expansion of the permit boundary of an existing solid waste disposal facility, shall be located within one-half mile of any area formally dedicated and managed for public recreation or natural preservation by a federal, state, or local government agency.”

A review of available information has not identified any public recreation or natural preservation areas within one-half mile of the proposed expansion area. However, in order to verify compliance, A&M Engineering and APAC are requesting a written confirmation from the Bureau of Indian Affairs stating that there are no parks, recreational facilities, and/or sensitive archeological sites within one-half mile of the proposed expansion area. In the event that a sensitive area is identified within one-half mile of the site, it is requested that a statement be

Mr. Eddie Streater  
November 22, 2016  
Page 2 of 2

provided as to whether or not the proposed development would be expected to adversely affect the area.

If you have any questions regarding this request, please do not hesitate to contact me by telephone at (918) 665-6575 or by email at [dertugrul@aandmengineering.com](mailto:dertugrul@aandmengineering.com). Thank you very much for your assistance with this matter.

Respectfully,  
**A&M Engineering and Environmental Services, Inc.**

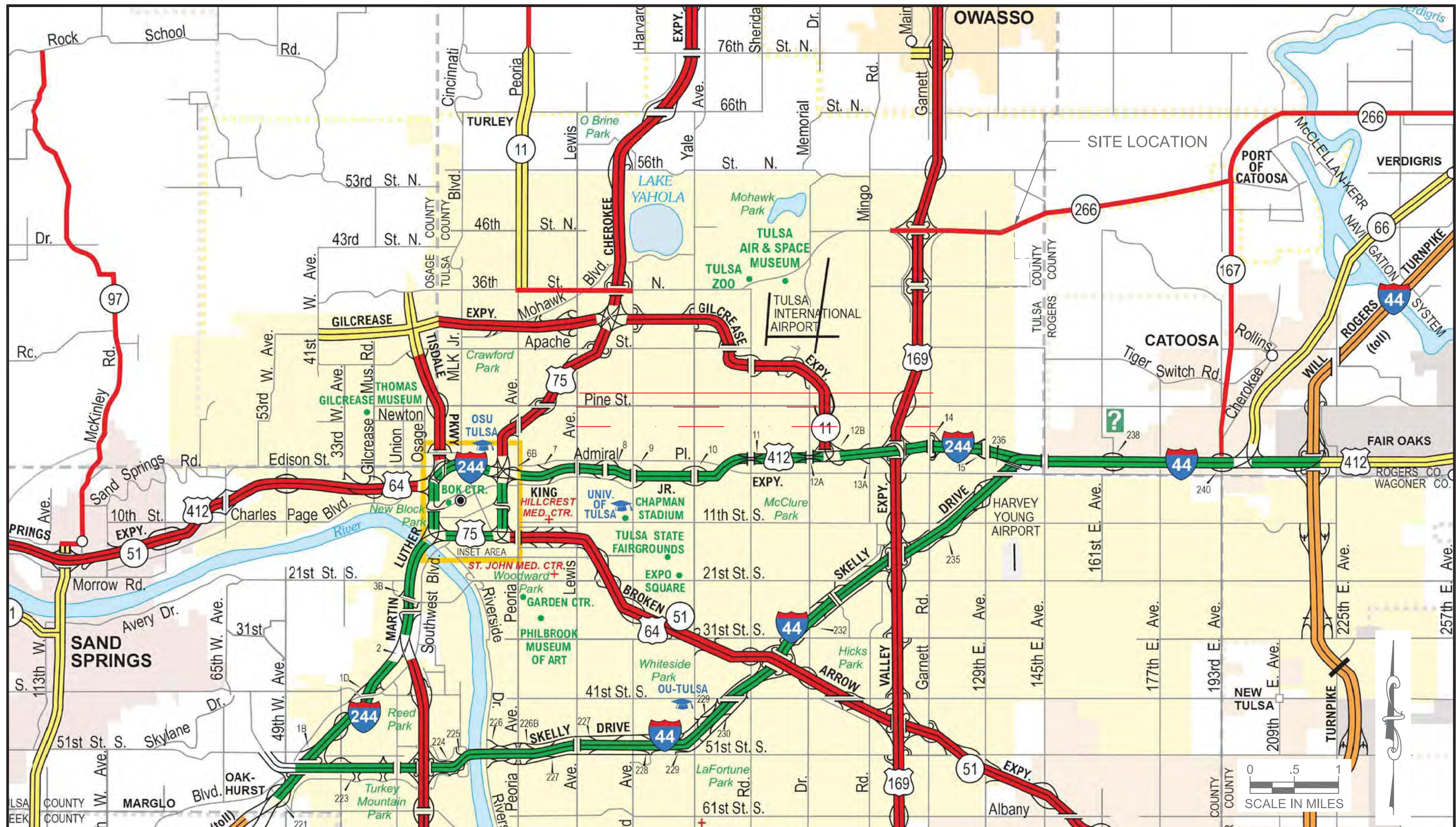
A handwritten signature in black ink, reading "Deren M Ertugrul". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Deren M. Ertugrul, P.E.  
Project Manager

Attachment: Figures

cc: Mr. Kristopher McClanahan, APAC-Central, Inc.  
Mr. Biff Huckaby, APAC-Central, Inc.





## SITE LOCATION MAP

**APAC EAST QUARRY C&D LANDFILL  
TULSA, OKLAHOMA**

[illegible]

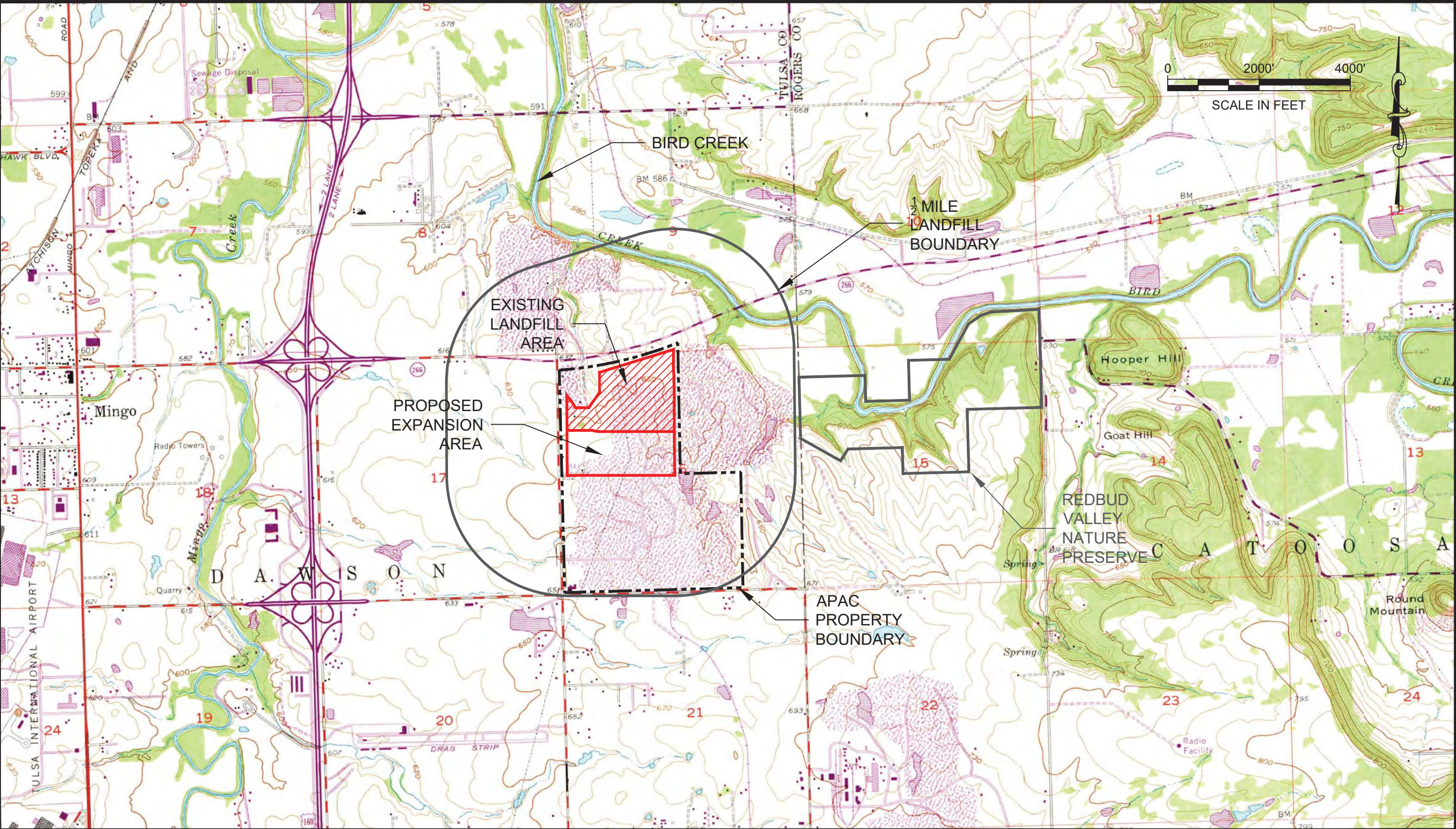
**A & M ENGINEERING AND  
ENVIRONMENTAL SERVICES, INC.**

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**ENGINEERING – ENVIRONMENTAL – CONSTRUCTION**

DRAWN: PAL		CHECKED BY: DME	MATERIALS BY:	ENGINEER:	APPROVED BY: DME	SCALE:	PROJECT NUMBER:	DRAWING NUMBER:	REV:
DATE: 11/23/2016	DATE: 11/23/2016	DATE:	DATE:	DATE: 11/23/2016	NOTED	1800-043	FIGURE 1		





GENERAL NOTES		REVISIONS										<div><div>M</div><div>A &amp; M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.</div><div>ENGINEERING — ENVIRONMENTAL — CONSTRUCTION</div></div>				<div>TOPOGRAPHIC SITE MAP</div> <div>PROPOSED LANDFILL EXPANSION</div> <div>APAC EAST QUARRY C&amp;D LANDFILL</div> <div>TULSA, OKLAHOMA</div>							
1) BASE MAP SOURCE: USGS 7.5 MINUTE MINGO, OKLAHOMA QUADRANGLE, 1955, PHOTO REVISED 1973.		NO.	DESCRIPTION	BY	CHECKED	DATE	NO.	DESCRIPTION	BY	CHECKED	DATE												
																	</						



UNITED STATES DEPT. OF THE INTERIOR  
BUREAU OF INDIAN AFFAIRS  
OKLAHOMA REGIONAL OFFICE  
P.O. BOX 8002  
SKOGEE, OK 74402-8002

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300  
*Decem*

TULSA OK 741

05 DEC 10 3 14 PM '16



02 1M  
0004212759  
MAILED FROM ZIP CODE 74401

\$ 00.46<sup>5</sup>

DEC 06 2016

Deren M. Ertugrul, P.E.  
A & M Engineering and Environmental Services, Inc.  
10010 E. 16th St.  
Tulsa, OK 74128-4713

7412844611





IN REPLY REFER TO:

United States Department of the Interior  
BUREAU OF INDIAN AFFAIRS  
Eastern Oklahoma Region  
Eastern Oklahoma Regional Office  
P.O. Box 8002  
Muskogee, OK 74402-8002



Division of Environmental and  
Cultural Resources Management

DEC 02 2016

Mr. Deren M. Ertugrul, P.E.  
A & M Engineering and Environmental Services, Inc.  
100010 E 16<sup>th</sup> Street  
Tulsa, OK 744128-4713

Dear Mr. Ertugrul:

On November 25, 2016, the Bureau of Indian Affairs, Eastern Oklahoma Regional Office, received a solicitation for information or comments from A & M Engineering & Environmental Services, Inc., concerning expansion of the existing APAC East Quarry Construction and Demolition Landfill. The project area is located in Section 16; Township 20 North; Range 14 East in Tulsa County, Oklahoma.

Two Federally recognized Tribes and the City of Tulsa have been provided a copy of your letter and map. As the Tribes may have environmental and/or cultural resources concerns relating to this action, it is recommended that A & M Engineering & Environmental Services, Inc. coordinate directly with the Tribes on any of their concerns. The contact addresses are enclosed.

The map you provided shows that the edge of the one-half mile buffer drawn around the north portion of your property is very close to the City of Tulsa's Redbud Valley Nature Preserve. You may wish to contact appropriate city officials in charge of the Preserve to ensure that no impacts will occur due to this or future expansions.

The one-half mile buffer also extends across Bird Creek which is designated in federally-approved water quality standards as a public and private water supply, warm water aquatic community and primary body contact recreation stream. These beneficial uses have numeric and narrative instream standards for bacteria and other constituents. To determine how these standards may apply to your project, you should contact the Oklahoma Department of Environmental Quality (ODEQ) Water Quality Division.

If additional information is required, please contact Ms. Jeannine Hale, Division Chief, Division of Environmental and Cultural Resources Management, at (918) 781-4660.

Respectfully,  
  
ACTING Regional Director

Enclosure



Raelynn Butler  
Tribal Historic Preservation Officer  
Muscogee (Creek) Nation  
P.O. Box 580  
Okmulgee, OK 74447  
Phone: (918) 732-7600  
Fax: (918) 756-2911

Dr. Andrea Hunter  
Tribal Historic Preservation Officer  
Osage Nation  
627 Grandview Avenue  
Pawhuska, OK 74056  
Phone: (918) 287-5432  
Fax: (918) 287-2257



**A & M ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

10010 E. 16<sup>TH</sup> STREET  
TULSA, OKLAHOMA 74128-4713

ENGINEERING • ENVIRONMENTAL • CONSTRUCTION  
(918) 665-6575 • FAX (918) 665-6576  
EMAIL: aandm@aandmengineering.com

February 13, 2017

Registered Mail Return Receipt

Raelynn Butler  
Tribal Historic Preservation Officer  
Muscogee (Creek) Nation  
P.O. Box 580  
Okmulgee, Oklahoma 74447

**RE: Public Recreation or Natural Preservation Area Statement  
APAC East Quarry C&D Landfill Expansion  
Tulsa County, Oklahoma**

Dear Ms. Butler:

A&M Engineering and Environmental Services, Inc. (A&M Engineering) is in the process of preparing a landfill expansion permit application, on behalf of APAC-Central, Inc. (APAC), to expand the existing APAC East Quarry Construction and Demolition (C&D) Landfill located in Tulsa, Oklahoma. The existing landfill facility is located within the City of Tulsa city limits, east of 129<sup>th</sup> Street and south of State Highway 266. The proposed 55-acre lateral expansion area is located within an existing rock quarry adjacent to and south of the existing landfill permit area in the Northwest Quarter (1/4) of Section 16, Township 20 North, Range 14 East of the Indian Base and Meridian. For your reference, a General Site Location Map and Topographic Site Map are provided as Figures 1 and 2 respectively.

The purpose of this letter is to confirm compliance with the Oklahoma Department of Environmental Quality (DEQ) landfill location restrictions as set forth in Oklahoma Administrative Code (OAC) 252:515-5-31. OAC 252:515-5-31(b) states that “no area within the permit boundary of a new solid waste disposal facility, or expansion of the permit boundary of an existing solid waste disposal facility, shall be located within one-half mile of any area formally dedicated and managed for public recreation or natural preservation by a federal, state, or local government agency.”

A review of available information has not identified any public recreation or natural preservation areas within one-half mile of the proposed expansion area. However, in order to verify compliance, A&M Engineering and APAC are requesting a written confirmation from the Muscogee (Creek) Nation stating that there are no parks, recreational facilities, and/or sensitive archeological sites within one-half mile of the proposed expansion area. In the event that a sensitive area is identified within one-half mile of the site, it is requested that a statement be

Raelynn Butler  
February 13, 2017  
Page 2 of 2

provided as to whether or not the proposed development would be expected to adversely affect the area.

If you have any questions regarding this request, please do not hesitate to contact me by telephone at (918) 665-6575 or by email at [dertugrul@aandmengineering.com](mailto:dertugrul@aandmengineering.com). Thank you very much for your assistance with this matter.

Respectfully,  
**A&M Engineering and Environmental Services, Inc.**

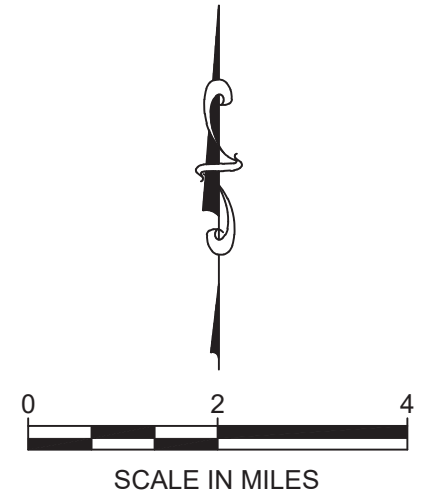
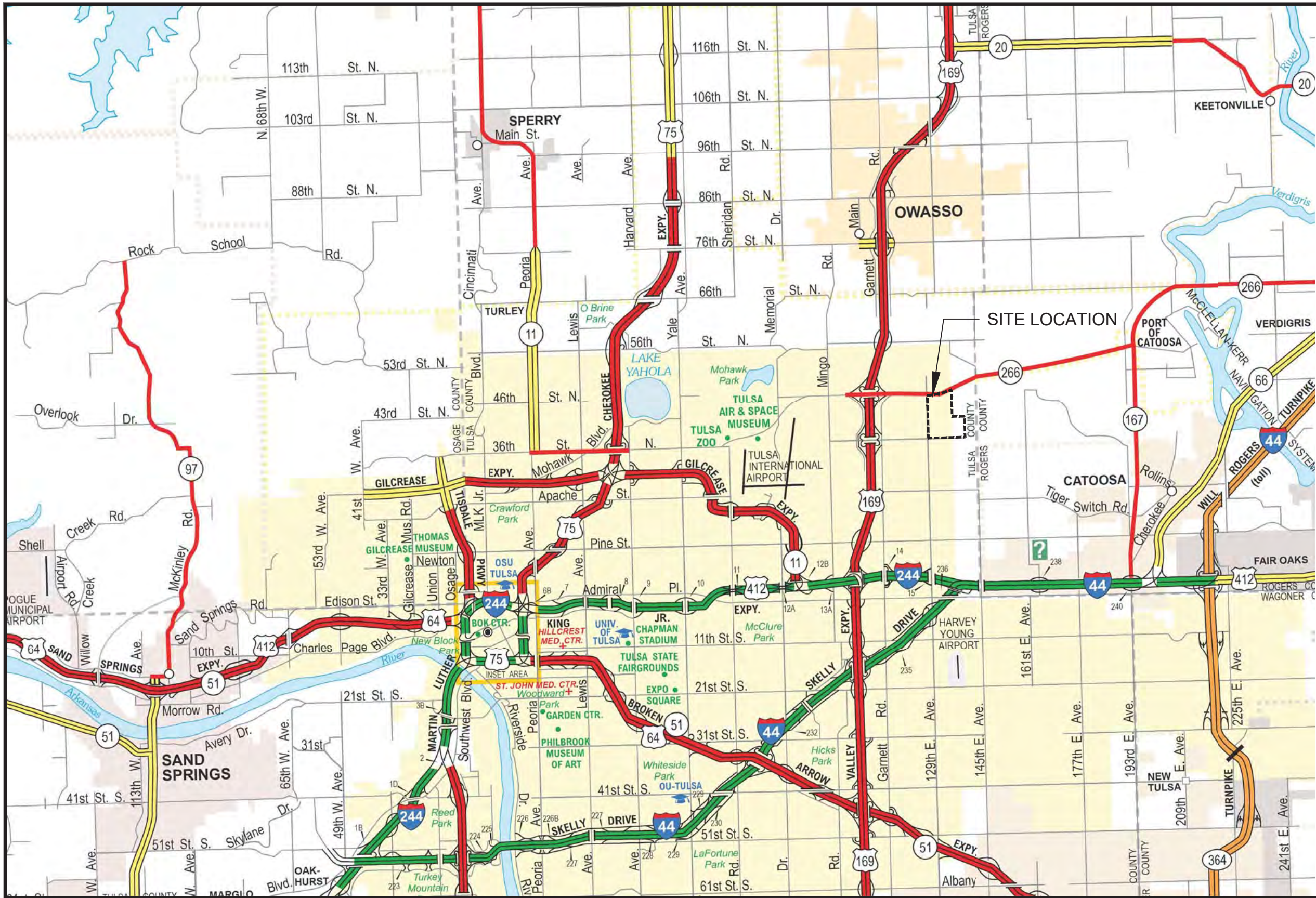
A handwritten signature in black ink, reading "Deren M Ertugrul". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

Deren M. Ertugrul, P.E.  
Project Manager

Attachment: Figures

cc: Mr. Kristopher McClanahan, APAC-Central, Inc.  
Mr. Biff Huckaby, APAC-Central, Inc.





GENERAL NOTES		REVISIONS										<div><div><div>M</div></div><div>A &amp; M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.</div><div>ENGINEERING — ENVIRONMENTAL — CONSTRUCTION</div></div>				SITE LOCATION MAP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
1) MAP FROM CITY OF TULSA WEBSITE.		NO.	DESCRIPTION	BY	CHECKED	DATE	NO.	DESCRIPTION	BY	CHECKED	DATE					APAC EAST QUARRY C&D LANDFILL TULSA, OKLAHOMA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												







## SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

ms Raelynn Butler  
Tribal Historic Preservation  
muco geed (check) nation  
P.O. Box - 580 Okmulgee, OK 74447



9590 9402 2448 6249 6888 23

2. Article Number (Transfer from service label)

7016 0750 0000 0969 1856

## COMPLETE THIS SECTION ON DELIVERY

A. Signature

☒ X ☐ Agent☐ Addressee

B. Received by (Printed Name)

C. Date of Delivery

2/17/17

D. Is delivery address different from item 1? ☐ Yes  
If YES, enter delivery address below: ☐ No

3. Service Type

☐ Adult Signature☐ Adult Signature Restricted Delivery☒ Certified Mail®☐ Certified Mail Restricted Delivery☐ Collect on Delivery☐ Collect on Delivery Restricted Delivery☐ Insured Mail

Mail Restricted Delivery

(0)

☐ Priority Mail Express®☐ Registered Mail™☐ Registered Mail Restricted Delivery☒ Return Receipt for Merchandise☐ Signature Confirmation™☐ Signature Confirmation Restricted Delivery



**A & M ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

10010 E. 16<sup>TH</sup> STREET  
TULSA, OKLAHOMA 74128-4713

ENGINEERING • ENVIRONMENTAL • CONSTRUCTION  
(918) 665-6575 • FAX (918) 665-6576  
EMAIL: aandm@aandmengineering.com

November 22, 2016

Registered Mail Return Receipt

Mr. Robert L. Brooks  
State Archeologist  
Oklahoma Archeological Survey  
111 East Chesapeake  
Norman, Oklahoma 73019-5111

**RE: Public Recreation or Natural Preservation Area Statement  
APAC East Quarry C&D Landfill Expansion  
Tulsa County, Oklahoma**

Dear Mr. Brooks:

A&M Engineering and Environmental Services, Inc. (A&M Engineering) is in the process of preparing a landfill expansion permit application, on behalf of APAC-Central, Inc. (APAC), to expand the existing APAC East Quarry Construction and Demolition (C&D) Landfill located in Tulsa, Oklahoma. The existing landfill facility is located northeast of the City of Tulsa, east of 129<sup>th</sup> Street and south of State Highway 266. The proposed 55-acre lateral expansion area is located within an existing rock quarry adjacent to and south of the existing landfill permit area in the Northwest Quarter (1/4) of Section 16, Township 20 North, Range 14 East of the Indian Base and Meridian. For your reference, a General Site Location Map and Topographic Site Map are provided as Figures 1 and 2 respectively.

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A review of available information has not identified any public recreation or natural preservation areas within one-half mile of the proposed expansion area. However, in order to verify compliance, A&M Engineering and APAC are requesting a written confirmation from the Oklahoma Archeological Survey stating that there are no parks, recreational facilities, and/or sensitive archeological sites within one-half mile of the proposed expansion area. In the event that a sensitive area is identified within one-half mile of the site, it is requested that a statement



Mr. Robert L. Brooks  
November 22, 2016  
Page 2 of 2

be provided as to whether or not the proposed development would be expected to adversely affect the area.

If you have any questions regarding this request, please do not hesitate to contact me by telephone at (918) 665-6575 or by email at [dertugrul@aandmengineering.com](mailto:dertugrul@aandmengineering.com). Thank you very much for your assistance with this matter.

Respectfully,  
**A&M Engineering and Environmental Services, Inc.**

A handwritten signature in black ink, reading "Deren M Ertugrul". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

Deren M. Ertugrul, P.E.  
Project Manager

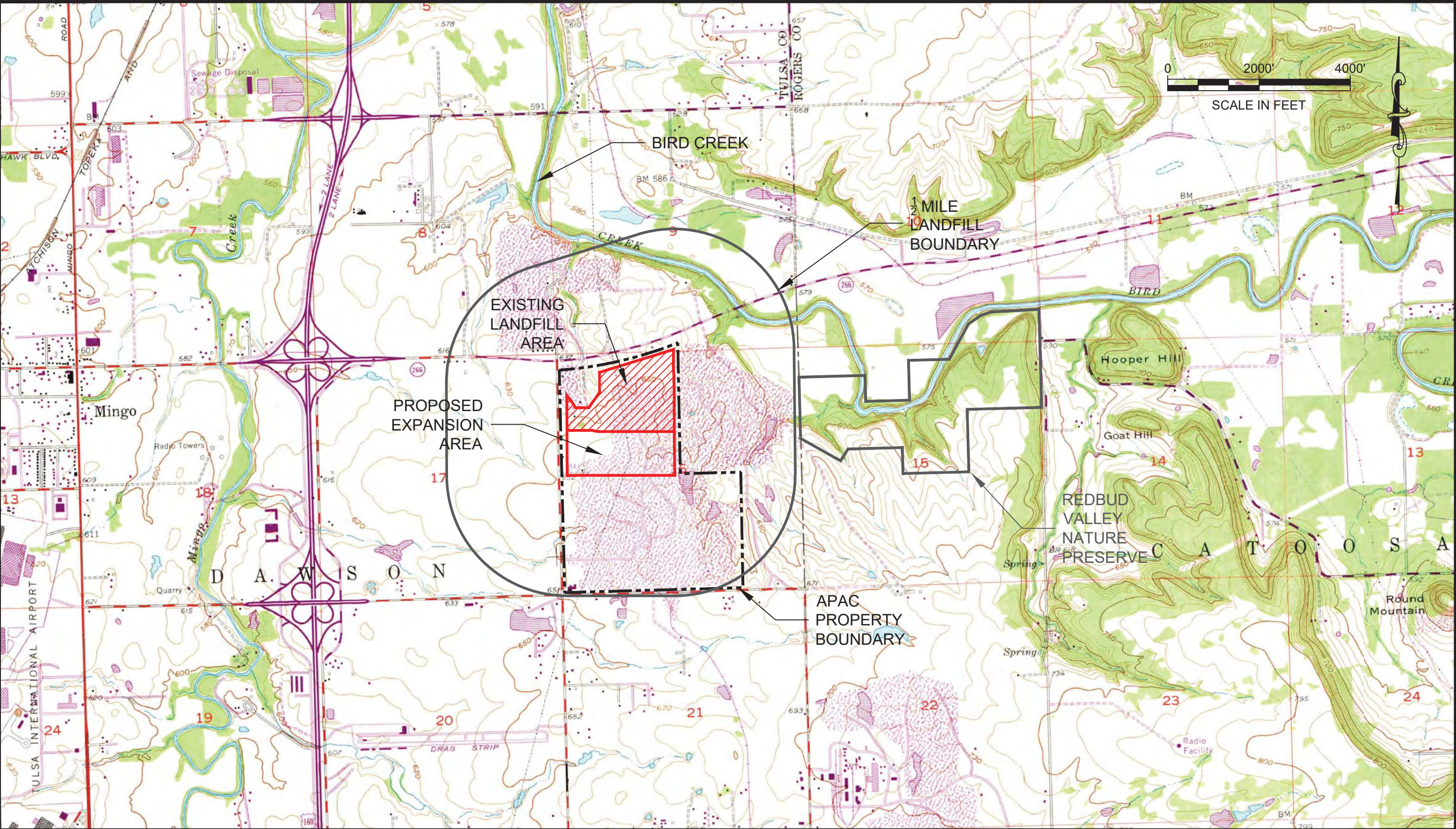
Attachment: Figures

cc: Mr. Kristopher McClanahan, APAC-Central, Inc.  
Mr. Biff Huckaby, APAC-Central, Inc.









GENERAL NOTES		REVISIONS										<div><div>M</div><div>A &amp; M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.</div><div>ENGINEERING — ENVIRONMENTAL — CONSTRUCTION</div></div>				TOPOGRAPHIC SITE MAP PROPOSED LANDFILL EXPANSION APAC EAST QUARRY C&D LANDFILL TULSA, OKLAHOMA							
1) BASE MAP SOURCE: USGS 7.5 MINUTE MINGO, OKLAHOMA QUADRANGLE, 1955, PHOTO REVISED 1973.		NO.	DESCRIPTION	BY	CHECKED	DATE	NO.	DESCRIPTION	BY	CHECKED	DATE												





## Oklahoma Archeological Survey

THE UNIVERSITY OF OKLAHOMA

November 28, 2016

Deren M. Ertugrul, P.E.  
A&M Engineering and Environmental Services, Inc.  
10010 East 16<sup>th</sup> Street  
Tulsa, Oklahoma 74128-4713

Re: ODEQ A &M Engineering, APAC Expand Landfill by 55 Acres – APAC East Quarry  
C &D Landfill Expansion.  
Legal Description: S ½ NW ¼ ; N ½ N ½ SW ¼ of Section 16, T20N, R14E, Tulsa  
County, Oklahoma.

Dear Mr. Ertugrul:


The Community Assistance Program staff of the Oklahoma Archeological Survey has reviewed the above referenced project in order to identify areas that may potentially contain prehistoric or historic archeological materials (historic properties). The location of your project has been crosschecked with the state site files containing approximately 23,000 archaeological sites, which are currently recorded for the state of Oklahoma. No Sites are listed as occurring within your project area, and based on the topographic and hydrologic setting, no archaeological materials are likely to be encountered. Thus an archaeological field inspection is not considered necessary. Please contact this office at (405) 325-7211 if buried archaeological materials such as chipped stone tools, pottery, bone, historic crockery, glass, metal items or building materials are exposed during construction activities.

This environmental review and evaluation is done in cooperation with the State Historic Preservation's Office and the Oklahoma Historical Society. The responsible federal agency or their official delegate must also have a letter from that office to document consultation pursuant to Section 106 of the National Historic Preservation Act.

In addition to our comment on the cultural resource inventory conducted for this project, under 36 CFR Park 800.3 you are reminded to consult with the appropriate Native American tribe/groups for any concerns they may have pertaining to this report

Sincerely,

  
J. Matthew Oliver  
Staff Archaeologist

  
Kary L. Stackelbeck  
State Archaeologist

: brb  
cc: SHPO







## *Oklahoma Archeological Survey*

THE UNIVERSITY OF OKLAHOMA  
111 E. Chesapeake, Room 102  
Norman, Oklahoma 73019-5111



PRESORTED  
FIRST CLASS



U.S. POSTAGE >> PITNEY BOWES



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Deren M. Entugrul, P.E.  
A&M Engineering and Environmental Services, Inc  
10010 East 16<sup>th</sup> Street  
Tulsa, Oklahoma 74128-4713

JPRS03B 74128





**A & M ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

10010 E. 16<sup>TH</sup> STREET  
TULSA, OKLAHOMA 74128-4713

ENGINEERING • ENVIRONMENTAL • CONSTRUCTION  
(918) 665-6575 • FAX (918) 665-6576  
EMAIL: aandm@aandmengineering.com

February 13, 2017

Registered Mail Return Receipt

Dr. Andrea Hunter  
Tribal Historic Preservation Officer  
Osage Nation  
627 Grandview Avenue  
Pawhuska, Oklahoma 74056

**RE: Public Recreation or Natural Preservation Area Statement  
APAC East Quarry C&D Landfill Expansion  
Tulsa County, Oklahoma**

Dear Dr. Hunter:

A&M Engineering and Environmental Services, Inc. (A&M Engineering) is in the process of preparing a landfill expansion permit application, on behalf of APAC-Central, Inc. (APAC), to expand the existing APAC East Quarry Construction and Demolition (C&D) Landfill located in Tulsa, Oklahoma. The existing landfill facility is located within the City of Tulsa city limits, east of 129<sup>th</sup> Street and south of State Highway 266. The proposed 55-acre lateral expansion area is located within an existing rock quarry adjacent to and south of the existing landfill permit area in the Northwest Quarter (1/4) of Section 16, Township 20 North, Range 14 East of the Indian Base and Meridian. For your reference, a General Site Location Map and Topographic Site Map are provided as Figures 1 and 2 respectively.

The purpose of this letter is to confirm compliance with the Oklahoma Department of Environmental Quality (DEQ) landfill location restrictions as set forth in Oklahoma Administrative Code (OAC) 252:515-5-31. OAC 252:515-5-31(b) states that “no area within the permit boundary of a new solid waste disposal facility, or expansion of the permit boundary of an existing solid waste disposal facility, shall be located within one-half mile of any area formally dedicated and managed for public recreation or natural preservation by a federal, state, or local government agency.”

A review of available information has not identified any public recreation or natural preservation areas within one-half mile of the proposed expansion area. However, in order to verify compliance, A&M Engineering and APAC are requesting a written confirmation from the Osage Nation stating that there are no parks, recreational facilities, and/or sensitive archeological sites within one-half mile of the proposed expansion area. In the event that a sensitive area is identified within one-half mile of the site, it is requested that a statement be provided as to whether or not the proposed development would be expected to adversely affect the area.

Dr. Andrea Hunter  
February 13, 2017  
Page 2 of 2

If you have any questions regarding this request, please do not hesitate to contact me by telephone at (918) 665-6575 or by email at [dertugrul@aandmengineering.com](mailto:dertugrul@aandmengineering.com). Thank you very much for your assistance with this matter.

Respectfully,  
**A&M Engineering and Environmental Services, Inc.**

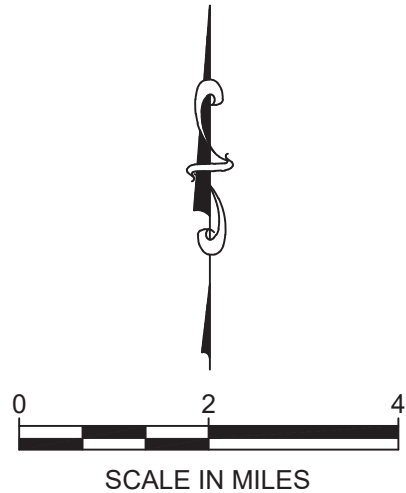
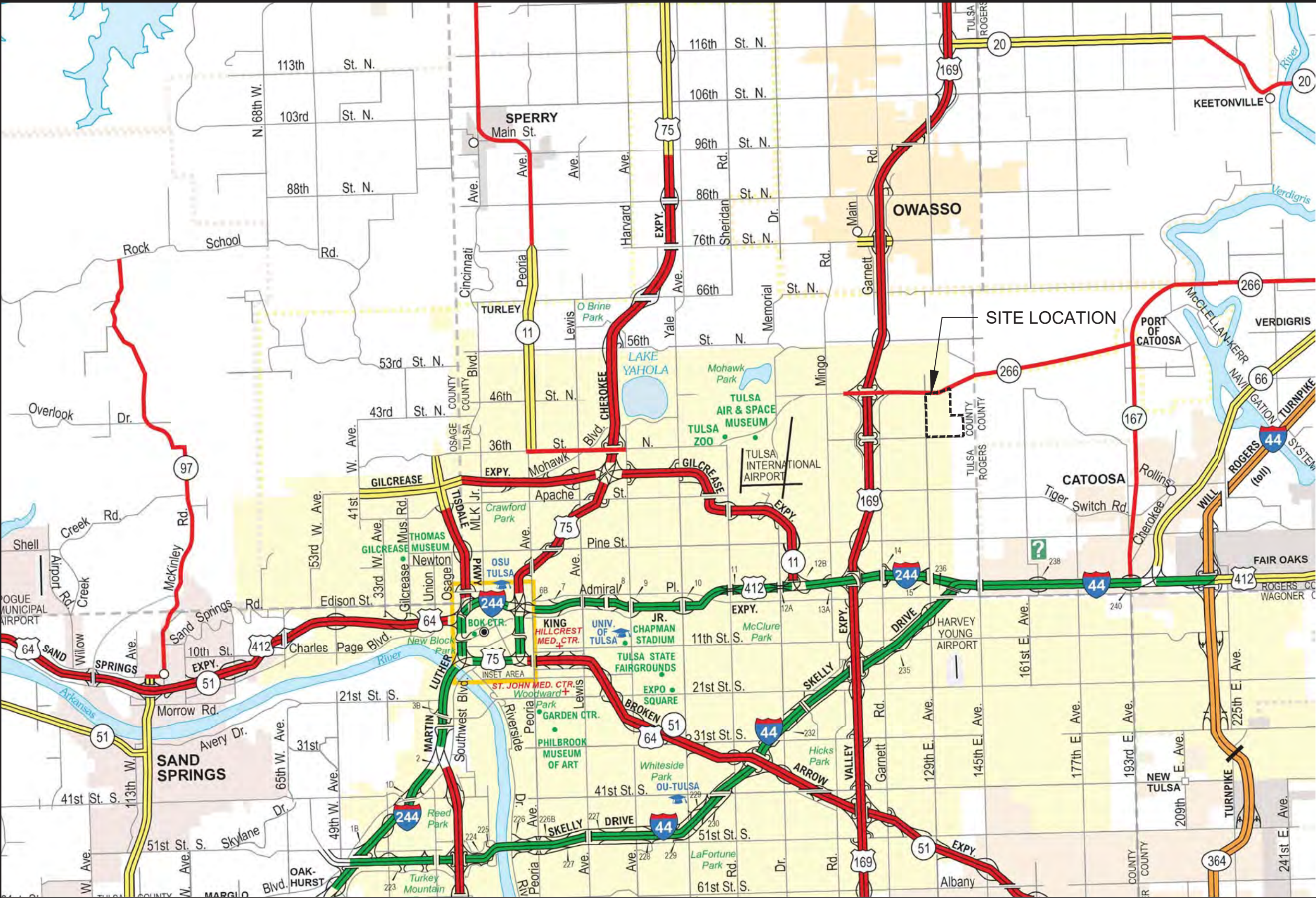
A handwritten signature in black ink, reading "Deren M Ertugrul". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

Deren M. Ertugrul, P.E.  
Project Manager

Attachment: Figures

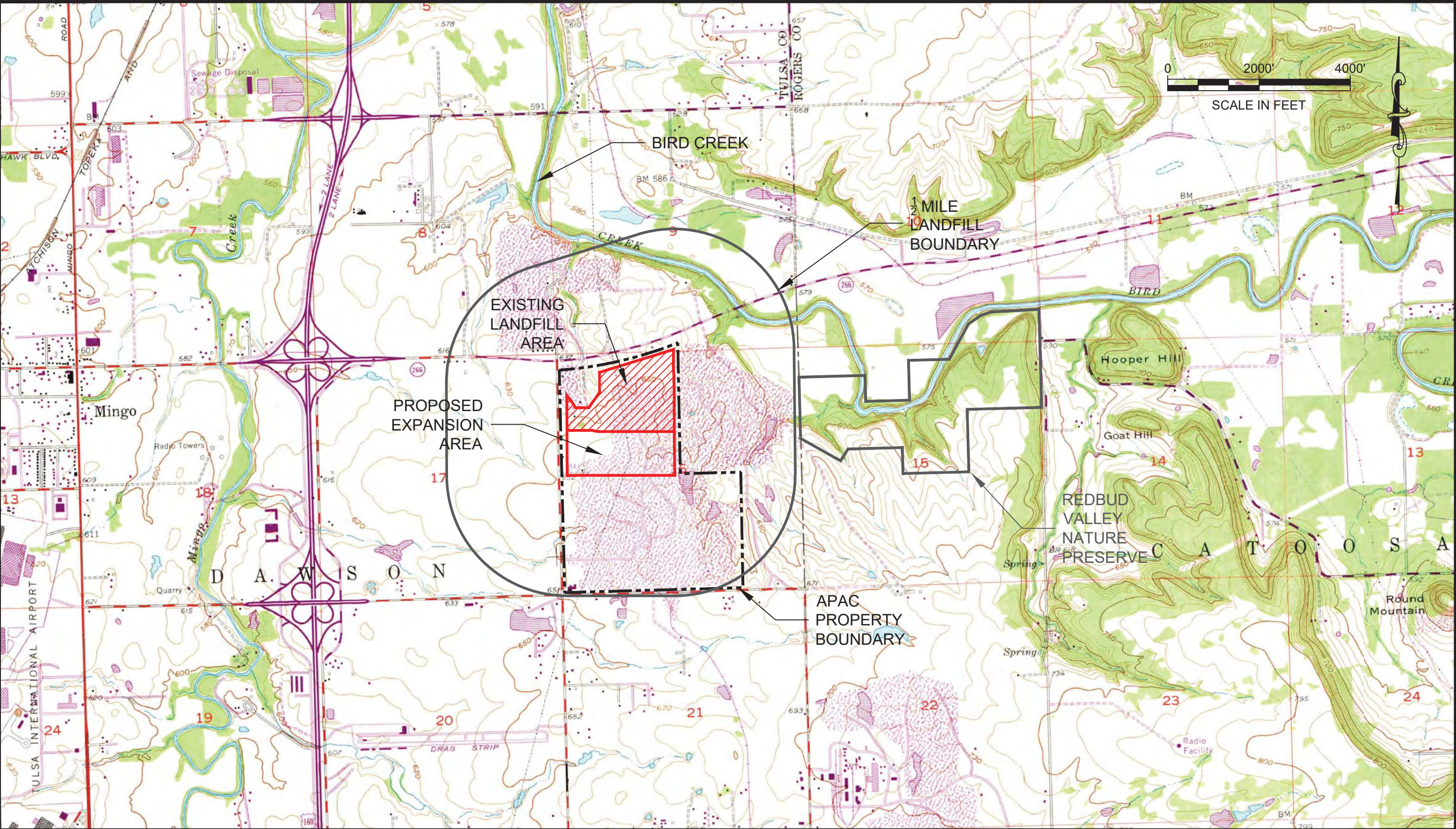
cc: Mr. Kristopher McClanahan, APAC-Central, Inc.  
Mr. Biff Huckaby, APAC-Central, Inc.





GENERAL NOTES		REVISIONS								<div><div><div>M</div></div><div>A &amp; M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.</div><div>ENGINEERING — ENVIRONMENTAL — CONSTRUCTION</div></div>				SITE LOCATION MAP						
1) MAP FROM CITY OF TULSA WEBSITE.		NO.	DESCRIPTION	BY	CHECKED	DATE	NO.	DESCRIPTION	BY					CHECKED	DATE	APAC EAST QUARRY C&D LANDFILL TULSA, OKLAHOMA				





GENERAL NOTES		REVISIONS										<div><div><div>M</div></div><div>A &amp; M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.</div><div>ENGINEERING — ENVIRONMENTAL — CONSTRUCTION</div></div>				<div>TOPOGRAPHIC SITE MAP</div> <div>PROPOSED LANDFILL EXPANSION</div> <div>APAC EAST QUARRY C&amp;D LANDFILL</div> <div>TULSA, OKLAHOMA</div>					
1) BASE MAP SOURCE: USGS 7.5 MINUTE MINGO, OKLAHOMA QUADRANGLE, 1955, PHOTO REVISED 1973.		NO.	DESCRIPTION	BY	CHECKED	DATE	NO.	DESCRIPTION	BY	CHECKED	DATE										





## TRIBAL HISTORIC PRESERVATION OFFICE

Date: February 27, 2017

File: 1617-1586OK-12

RE: DOI, BIA, A & M Engineering and Environmental Services, Expansion of existing APAC East Quarry Constriction and Demolition Landfill, Tulsa County, Oklahoma

A&M Engineering & Environmental Services, Inc.  
Deren M. Ertugrul  
10010 E. 16th Street  
Tulsa, OK 74128-4713

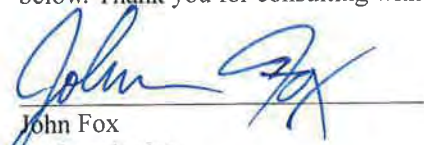
Dear Mr. Ertugrul,

The Osage Nation Historic Preservation Office has evaluated your submission and concurs that the proposed DOI, BIA, A & M Engineering and Environmental Services, Expansion of existing APAC East Quarry Constriction and Demolition Landfill, Tulsa County, Oklahoma most likely will not adversely affect any sacred properties and/or properties of cultural significance to the Osage Nation. **The Osage Nation has no further concern with this project, with the exception below.**

In accordance with the National Historic Preservation Act, (NHPA) [54 U.S.C. § 300101 et seq.] 1966, undertakings subject to the review process are referred to in 54 U.S.C. § 302706 (a), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969). **The Osage Nation concurs that the A&M Engineering & Environmental Services, Inc. has fulfilled NHPA compliance by consulting with the Osage Nation Historic Preservation Office in regard to the proposed DOI, BIA, A & M Engineering and Environmental Services, Expansion of existing APAC East Quarry Constriction and Demolition Landfill, Tulsa County, Oklahoma.**

The Osage Nation has vital interests in protecting its historic and ancestral cultural resources. We do not anticipate that this project will adversely impact any cultural resources or human remains protected under the NHPA, NEPA, the Native American Graves Protection and Repatriation Act, or Osage law. **If, however, artifacts or human remains are discovered during project-related activities, we ask that activities cease immediately and the Osage Nation Historic Preservation Office be contacted.**

Should you have any questions or need any additional information please feel free to contact me at the number listed below. Thank you for consulting with the Osage Nation on this matter.

  
John Fox  
Archaeologist

## **APPENDIX D-3**

### Endangered or Threatened Species Correspondence



## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Oklahoma Ecological Services Field Office  
9014 EAST 21ST STREET  
TULSA, OK 74129  
PHONE: (918)581-7458 FAX: (918)581-7467  
URL: [www.fws.gov/southwest/es/Oklahoma/](http://www.fws.gov/southwest/es/Oklahoma/)

Consultation Code: 02EKOK00-2017-SLI-0430

November 22, 2016

Event Code: 02EKOK00-2017-E-00461

Project Name: APAC C&D Landfill

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.



A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Non-federal entities conducting activities that may result in take of listed species should consider seeking coverage under section 10 of the ESA, either through development of a Habitat Conservation Plan (HCP) or, by becoming a signatory to the General Conservation Plan (GCP) currently under development for the American burying beetle. Each of these mechanisms provides the means for obtaining a permit and coverage for incidental take of listed species during otherwise lawful activities.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit through our Project Review step-wise process <http://www.fws.gov/southwest/es/oklahoma/OKESFO%20Permit%20Home.htm>.

Attachment



United States Department of Interior  
Fish and Wildlife Service

Project name: APAC C&D Landfill

## Official Species List

### Provided by:

Oklahoma Ecological Services Field Office

9014 EAST 21ST STREET

TULSA, OK 74129

(918) 581-7458

<http://www.fws.gov/southwest/es/Oklahoma/>

**Consultation Code:** 02EKOK00-2017-SLI-0430

**Event Code:** 02EKOK00-2017-E-00461

**Project Type:** Landfill

**Project Name:** APAC C&D Landfill

**Project Description:** Permitting for a 55-acre lateral expansion to an existing C&D Landfill located northeast of the City of Tulsa, east of 129th Street and south of State Highway 266.

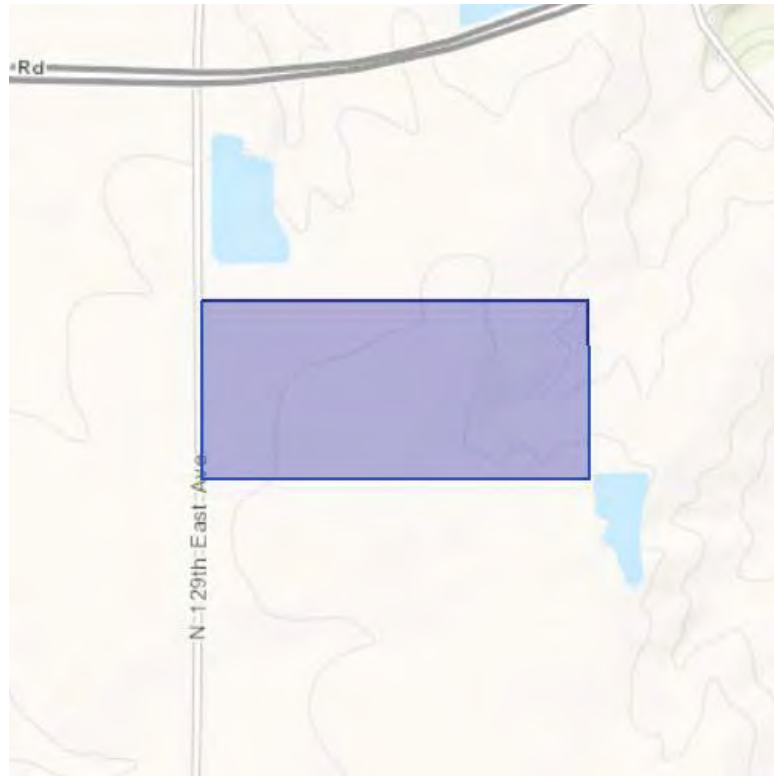
**Please Note:** The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior  
Fish and Wildlife Service

Project name: APAC C&D Landfill

### Project Location Map:



**Project Coordinates:** MULTIPOLYGON (((-95.82455635070801 36.213220607939284, -95.8330750465393 36.213220607939284, -95.83309650421143 36.2163887432151, -95.82457780838013 36.2163887432151, -95.82455635070801 36.213220607939284)))

**Project Counties:** Tulsa, OK



United States Department of Interior  
Fish and Wildlife Service

Project name: APAC C&D Landfill

## Endangered Species Act Species List

There are a total of 5 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Birds	Status	Has Critical Habitat	Condition(s)
Least tern ( <i>Sterna antillarum</i> ) Population: interior pop.	Endangered		
Piping Plover ( <i>Charadrius melodus</i> ) Population: except Great Lakes watershed	Threatened	Final designated	
Red Knot ( <i>Calidris canutus rufa</i> ) Population: Wherever found	Threatened		
<b>Insects</b>			
American Burying beetle ( <i>Nicrophorus americanus</i> ) Population: Entire	Endangered		
<b>Mammals</b>			
Northern long-eared Bat ( <i>Myotis septentrionalis</i> ) Population: Wherever found	Threatened		





United States Department of Interior  
Fish and Wildlife Service

Project name: APAC C&D Landfill

## **Critical habitats that lie within your project area**

There are no critical habitats within your project area.



United States Department of Interior  
Fish and Wildlife Service

Project name: APAC C&D Landfill

## **Appendix A: FWS National Wildlife Refuges and Fish Hatcheries**

There are no refuges or fish hatcheries within your project area.



United States Department of Interior  
Fish and Wildlife Service

Project name: APAC C&D Landfill

## Appendix B: FWS Migratory Birds

The protection of birds is regulated by the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). The MBTA has no otherwise lawful activities. For more information regarding these Acts see: <http://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php>  
<http://www.fws.gov/birds/policies-and-regulations/laws-legislations/bald-and-golden-eagle-protection-act.php>

All project proponents are responsible for complying with the appropriate regulations protecting birds when planning and developing a project. To meet these conservation obligations, proponents should identify potential or existing project-related impacts to migratory birds and their habitat and develop and implement conservation measures that avoid, minimize, or compensate for these impacts. The Service's Birds of Conservation Concern (2008) report identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C 1531 et seq.).

For information about Birds of Conservation Concern, go to:

<http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>

For information about conservation measures that help avoid or minimize impacts to birds, please visit:

<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>

To search and view summaries of year-round bird occurrence data within your project area, go to the Avian Knowledge Network Histogram Tools at:

<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/akn-histogram-tools.php>



United States Department of Interior  
Fish and Wildlife Service

Project name: APAC C&D Landfill

### Migratory birds that may be affected by your project:

There are 27 birds on your migratory bird list. The list may include birds occurring outside this FWS office jurisdiction.

Species Name	Bird of Conservation Concern (BCC)	Seasonal Occurrence in Project Area
Acadian Flycatcher ( <i>Empidonax virescens</i> )	Yes	Breeding
Bachman's sparrow ( <i>Aimophila aestivalis</i> )	Yes	Breeding
Bald eagle ( <i>Haliaeetus leucocephalus</i> )	Yes	Year-round
Bell's Vireo ( <i>Vireo bellii</i> )	Yes	Breeding
Bewick's Wren ( <i>Thryomanes bewickii ssp. bewickii</i> )	Yes	Year-round
Black-crowned Night-Heron ( <i>Nycticorax nycticorax</i> )	Yes	Breeding
Dickcissel ( <i>Spiza americana</i> )	Yes	Breeding
Field Sparrow ( <i>Spizella pusilla</i> )	Yes	Year-round
Fox Sparrow ( <i>Passerella liaca</i> )	Yes	Wintering
Golden eagle ( <i>Aquila chrysaetos</i> )	Yes	Wintering
Harris's Sparrow ( <i>Zonotrichia querula</i> )	Yes	Wintering
Henslow's sparrow ( <i>Ammodramus henslowii</i> )	Yes	Breeding
Hudsonian Godwit ( <i>Limosa haemastica</i> )	Yes	Migrating
Kentucky Warbler ( <i>Oporornis formosus</i> )	Yes	Breeding





United States Department of Interior  
Fish and Wildlife Service

Project name: APAC C&D Landfill

Le Conte's Sparrow ( <i>Ammodramus leconteii</i> )	Yes	Wintering
Least bittern ( <i>Ixobrychus exilis hesperis</i> )	No	Breeding
Loggerhead Shrike ( <i>Lanius ludovicianus</i> )	Yes	Year-round
Mississippi Kite ( <i>Ictinia mississippiensis</i> )	Yes	Breeding
Northern Flicker ( <i>Colaptes auratus</i> )	Yes	Year-round
Painted Bunting ( <i>Passerina ciris</i> )	Yes	Breeding
Prairie Warbler ( <i>Dendroica discolor</i> )	Yes	Breeding
Prothonotary Warbler ( <i>Protonotaria citrea</i> )	Yes	Breeding
Red-headed Woodpecker ( <i>Melanerpes erythrocephalus</i> )	Yes	Year-round
Rufous-crowned Sparrow ( <i>Aimophila ruficeps</i> )	Yes	Year-round
Rusty Blackbird ( <i>Euphagus carolinus</i> )	Yes	Wintering
Short-eared Owl ( <i>Asio flammeus</i> )	Yes	Wintering
Swainson's hawk ( <i>Buteo swainsoni</i> )	Yes	Breeding



United States Department of Interior  
Fish and Wildlife Service

Project name: APAC C&D Landfill

## Appendix C: NWI Wetlands

Wetlands data for your project area was not available at the time of this species list request.



**A & M ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

10010 E. 16<sup>TH</sup> STREET  
TULSA, OKLAHOMA 74128-4713

ENGINEERING • ENVIRONMENTAL • CONSTRUCTION  
(918) 665-6575 • FAX (918) 665-6576  
EMAIL: aandm@aandmengineering.com

November 22, 2016

Registered Mail Return Receipt

Mr. Jeff Kelly, PhD  
Director  
Oklahoma Biological Survey  
111 East Chesapeake Street  
Norman, Oklahoma 73019

**RE: Endangered or Threatened Species Statement  
APAC East Quarry C&D Landfill Expansion  
Tulsa County, Oklahoma**

Dear Mr. Kelly:

A&M Engineering and Environmental Services, Inc. (A&M Engineering) is in the process of preparing a landfill expansion permit application, on behalf of APAC-Central, Inc. (APAC), to expand the existing APAC East Quarry Construction and Demolition (C&D) Landfill located in Tulsa, Oklahoma. The existing landfill facility is located northeast of the City of Tulsa, east of 129<sup>th</sup> Street and south of State Highway 266. The proposed 55-acre lateral expansion area is located within an existing rock quarry adjacent to and south of the existing landfill permit area in the Northwest Quarter (1/4) of Section 16, Township 20 North, Range 14 East of the Indian Base and Meridian. For your reference, a General Site Location Map and Topographic Site Map are provided as Figures 1 and 2 respectively.

The purpose of this letter is to confirm compliance with the Oklahoma Department of Environmental Quality (DEQ) landfill location restriction requirements as set forth in Oklahoma Administrative Code (OAC) 252:515-5-31. OAC 252:515-5-31(c) states that “for a new solid waste disposal facility, or expansion of the permit boundary of an existing solid waste disposal facility, a statement from the Oklahoma Department of Wildlife Conservation (ODWC) and from the Oklahoma Biological Survey (OBS), shall be submitted regarding current information about endangered or threatened wildlife or plant species listed in state and federal laws, that exist within one mile of the permit boundary or expansion area.”

At this time, A&M Engineering and APAC are requesting a statement from the OBS regarding current information about threatened or endangered species that may be present within one mile of the proposed landfill expansion area.

Mr. Jeff Kelly, PhD  
November 22, 2016  
Page 2 of 2

If you have any questions regarding this request, please do not hesitate to contact me by telephone at (918) 665-6575 or by email at [dertugrul@aandmengineering.com](mailto:dertugrul@aandmengineering.com). Thank you very much for your assistance with this matter.

Respectfully,  
**A&M Engineering and Environmental Services, Inc.**

A handwritten signature in black ink, reading "Deren M Ertugrul". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

Deren M. Ertugrul, P.E.  
Project Manager

Attachment: Figures

cc: Mr. Kristopher McClanahan, APAC-Central, Inc.  
Mr. Biff Huckaby, APAC-Central, Inc.











OBS Ref. 2016-540-BUS-AME

Dear Ms. Ertugrul,

Nov. 28, 2016

We have reviewed occurrence information on federal and state threatened, endangered or candidate species, as well as non-regulatory rare species and ecological systems of importance currently in the Oklahoma Natural Heritage Inventory database for the following location you provided:

Sec. 16-T20N-R14E, Tulsa County

We found 1 occurrence(s) of relevant species within the vicinity of the project location as described.

Bald Eagle (*Haliaeetus leucocephalus*), a federally protected species, one occurrence in Sec. 9-T20N-R14E, Tulsa County.

Additionally, absence from our database does not preclude such species from occurring in the area.

If you have any questions about this response, please send me an email, or call us at the number given below.

Although not specific to your project, you may find the following links helpful.

ONHI, guide to ranking codes for endangered and threatened species:  
[http://vmpincel.ou.edu/heritage/ranking\\_guide.html](http://vmpincel.ou.edu/heritage/ranking_guide.html)

Information regarding the Oklahoma Natural Areas Registry:  
[http://www.oknaturalheritage.ou.edu/registry\\_faq.htm](http://www.oknaturalheritage.ou.edu/registry_faq.htm)

Todd Fagin  
Oklahoma Natural Heritage Inventory  
(405) 325-4700  
tfagin@ou.edu



**A & M ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

10010 E. 16<sup>TH</sup> STREET  
TULSA, OKLAHOMA 74128-4713

ENGINEERING • ENVIRONMENTAL • CONSTRUCTION  
(918) 665-6575 • FAX (918) 665-6576  
EMAIL: aandm@aandmengineering.com

November 22, 2016

Registered Mail Return Receipt

Mr. Richard Hatcher  
Director  
Oklahoma Department of Wildlife Conservation  
P.O. Box 53465  
Oklahoma City, Oklahoma 73152

**RE:   Endangered or Threatened Species Statement  
      APAC East Quarry C&D Landfill Expansion  
      Tulsa County, Oklahoma**

Dear Mr. Hatcher:

A&M Engineering and Environmental Services, Inc. (A&M Engineering) is in the process of preparing a landfill expansion permit application, on behalf of APAC-Central, Inc. (APAC), to expand the existing APAC East Quarry Construction and Demolition (C&D) Landfill located in Tulsa, Oklahoma. The existing landfill facility is located northeast of the City of Tulsa, east of 129<sup>th</sup> Street and south of State Highway 266. The proposed 55-acre lateral expansion area is located within an existing rock quarry adjacent to and south of the existing landfill permit area in the Northwest Quarter (1/4) of Section 16, Township 20 North, Range 14 East of the Indian Base and Meridian. For your reference, a General Site Location Map and Topographic Site Map are provided as Figures 1 and 2 respectively.

The purpose of this letter is to confirm compliance with the Oklahoma Department of Environmental Quality (DEQ) landfill location restriction requirements as set forth in Oklahoma Administrative Code (OAC) 252:515-5-31. OAC 252:515-5-31(c) states that “for a new solid waste disposal facility, or expansion of the permit boundary of an existing solid waste disposal facility, a statement from the Oklahoma Department of Wildlife Conservation (ODWC) and from the Oklahoma Biological Survey (OBS), shall be submitted regarding current information about endangered or threatened wildlife or plant species listed in state and federal laws, that exist within one mile of the permit boundary or expansion area.”

At this time, A&M Engineering and APAC are requesting a statement from the ODWC regarding current information about threatened or endangered species that may be present within one mile of the proposed landfill expansion area.



Mr. Richard Hatcher  
November 22, 2016  
Page 2 of 2

If you have any questions regarding this request, please do not hesitate to contact me by telephone at (918) 665-6575 or by email at [dertugrul@aandmengineering.com](mailto:dertugrul@aandmengineering.com). Thank you very much for your assistance with this matter.

Respectfully,  
**A&M Engineering and Environmental Services, Inc.**

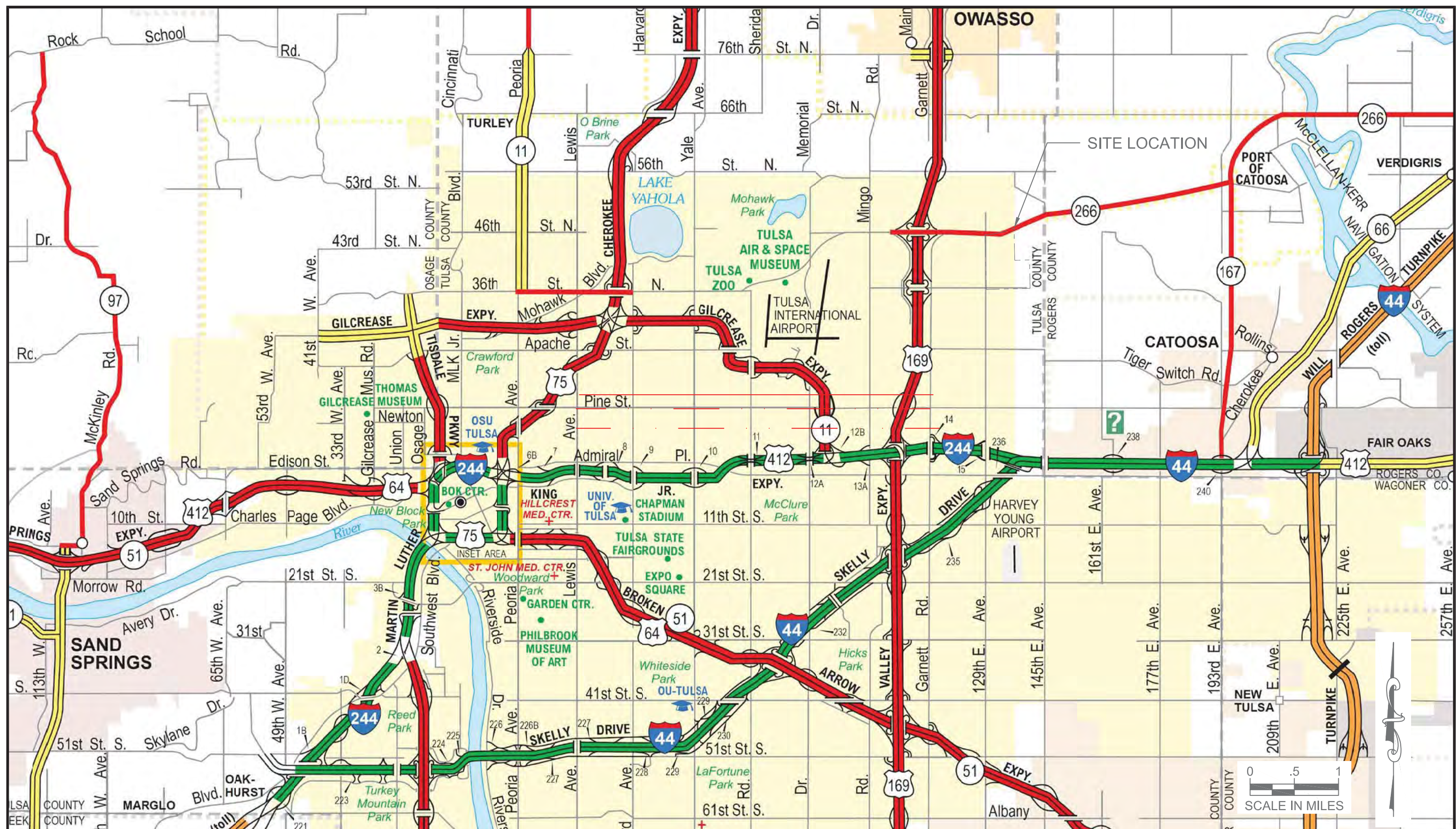
A handwritten signature in black ink, reading "Deren M. Ertugrul". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

Deren M. Ertugrul, P.E.  
Project Manager

Attachment: Figures

cc: Mr. Kristopher McClanahan, APAC-Central, Inc.  
Mr. Biff Huckaby, APAC-Central, Inc.





## SITE LOCATION MAP

**APAC EAST QUARRY C&D LANDFILL  
TULSA, OKLAHOMA**

GENERAL NOTES

1) MAP FROM CITY OF TULSA WEBSITE.

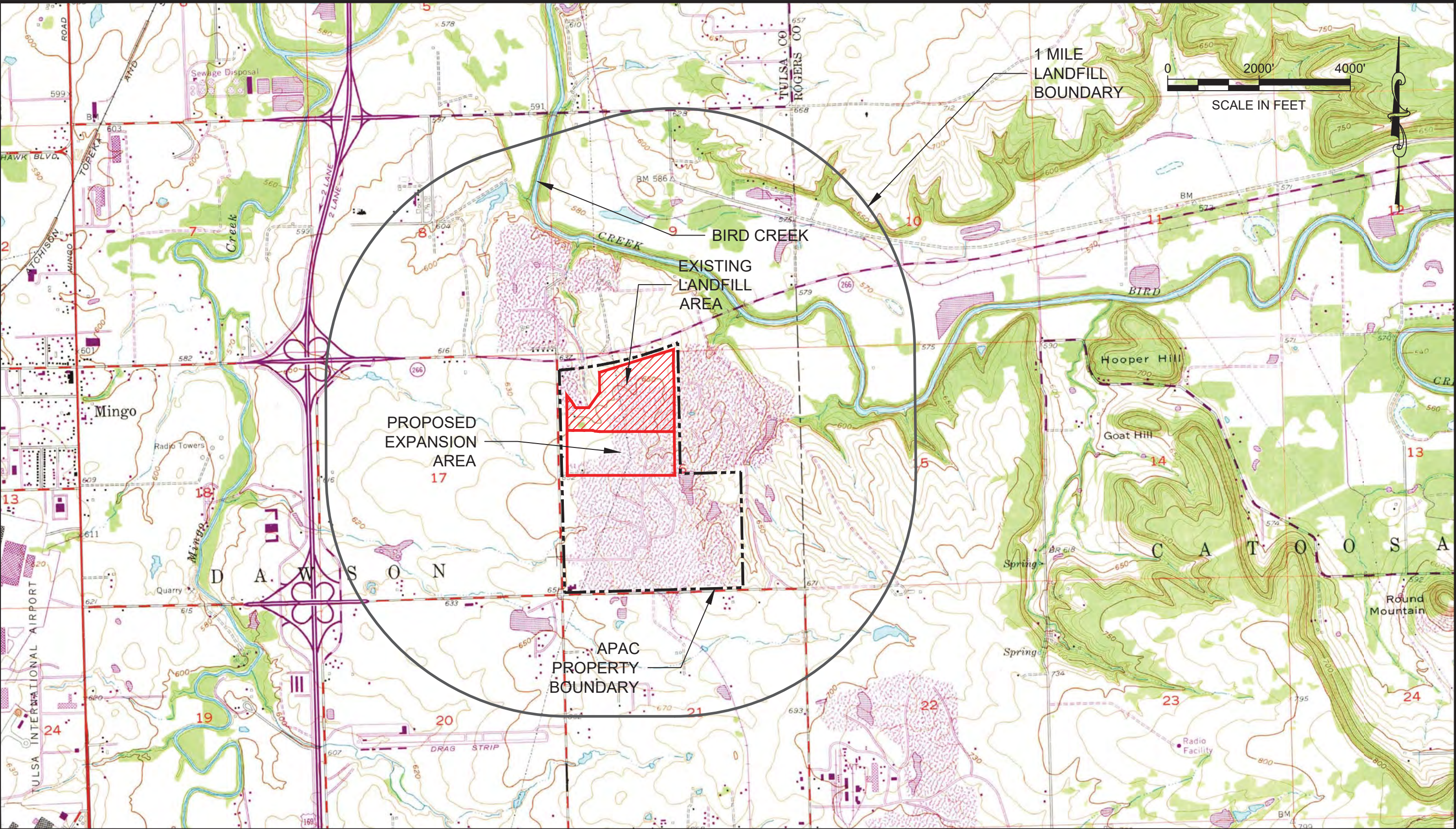
[illegible]

**A & M ENGINEERING AND  
ENVIRONMENTAL SERVICES, INC.**

DRAWN: PAL	CHECKED BY: DME	MATERIALS BY:	ENGINEER:
DATE: 11/23/2016	DATE: 11/23/2016	DATE:	DATE:

APPROVED BY: DME	SCALE:	PROJECT NUMBER:	DRAWING NUMBER:	REV.
DATE: 11/07/2010	NOTED	1800-043	FIGURE 1	






GENERAL NOTES

1) BASE MAP SOURCE: USGS 7.5 MINUTE MINGO, OKLAHOMA QUADRANGLE, 1955, PHOTO REVISED 1973.

REVISIONS					
NO.	DESCRIPTION	BY	CHECKED	DATE	



**A & M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.**

ENGINEERING — ENVIRONMENTAL — CONSTRUCTION

DRAWN: PAL	CHECKED BY: DME	MATERIALS BY:	ENGINEER:
DATE: 11/23/2016	DATE: 11/23/2016	DATE:	DATE:

**TOPOGRAPHIC SITE MAP**

**PROPOSED LANDFILL EXPANSION**

**APAC EAST QUARRY C&D LANDFILL**

**TULSA, OKLAHOMA**

APPROVED BY: DME	SCALE: NOTED	PROJECT NUMBER: 1800-043	DRAWING NUMBER: FIGURE 2	REV:
DATE: 11/23/2016				



## SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Richard Hatcher  
Oklahoma Dept. of Wildlife  
Conservation  
P.O. Box 53465  
Oklahoma City, OK 73152



9590 9402 2448 6249 6894 62

2. Article Number (Transfer from service label)

7016 0750 0000 0969 1948

## COMPLETE THIS SECTION ON DELIVERY

A. Signature

x *G. Head*☐ Agent☐ Addressee

B. Received by (Printed Name)

*G. Head*

C. Date of Delivery

*11/26/16*

D. Is delivery address different from item 1?

☐ YesIf YES, enter delivery address below: ☒ No

3. Service Type

☐ Adult Signature☐ Adult Signature Restricted Delivery☒ Certified Mail®☐ Certified Mail Restricted Delivery☐ Collect on Delivery☐ Collect on Delivery Restricted Delivery☐ Insured MailMail Restricted Delivery  
(00)☐ Priority Mail Express®☐ Registered Mail™☐ Registered Mail Restricted  
Delivery☒ Return Receipt for  
Merchandise☐ Signature Confirmation™☐ Signature Confirmation  
Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053

Domestic Return Receipt



## **APPENDIX D-4**

### **Public Water Supply Correspondence**



**A & M ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

10010 E. 16<sup>TH</sup> STREET  
TULSA, OKLAHOMA 74128-4713

ENGINEERING • ENVIRONMENTAL • CONSTRUCTION  
(918) 665-6575 • FAX (918) 665-6576  
EMAIL: aandm@aandmengineering.com

November 22, 2016

Registered Mail Return Receipt

Ms. Julie Cunningham  
Division Chief  
Planning and Management Division  
Oklahoma Water Resources Board  
3800 North Classen Boulevard  
Oklahoma City, Oklahoma 73118

**RE: Public Water Supply Statement  
APAC East Quarry C&D Landfill Expansion  
Tulsa County, Oklahoma**

Dear Mr. Strong:

A&M Engineering and Environmental Services, Inc. (A&M Engineering) is in the process of preparing a landfill expansion permit application, on behalf of APAC-Central, Inc. (APAC), to expand the existing APAC East Quarry Construction and Demolition (C&D) Landfill located in Tulsa, Oklahoma. The existing landfill facility is located northeast of the City of Tulsa, east of 129<sup>th</sup> Street and south of State Highway 266. The proposed 55-acre lateral expansion area is located within an existing rock quarry adjacent to and south of the existing landfill permit area in the Northwest Quarter (1/4) of Section 16, Township 20 North, Range 14 East of the Indian Base and Meridian. For your reference, a General Site Location Map and Topographic Site Map are provided as Figures 1 and 2 respectively.

The purpose of this letter is to confirm compliance with the Oklahoma Department of Environmental Quality (DEQ) landfill location restrictions as set forth in Oklahoma Administrative Code (OAC) 252:515-5. OAC 252:515-5-32(b) requires that no new solid waste disposal facility be located within one mile and up-gradient of an existing public water supply surface water intake, or one that is permitted for construction. OAC 252:515-5-32(c) also requires that a wellhead protection area be identified as specified by the State Wellhead Protection Plan if any solid waste disposal facility will be located within two miles of a public water supply well.

A review of available information indicates that the proposed expansion area is not located within one mile and up-gradient of an existing public water supply surface water intake, or one that is permitted for construction; or within two miles of a public water supply well. However, in order to verify compliance, A&M Engineering and APAC are requesting a written

Ms. Julie Cunningham  
November 22, 2016  
Page 2 of 2

confirmation from the OWRB stating that the proposed site is not located within the noted proximities.

If you have any questions regarding this request, please do not hesitate to contact me by telephone at (918) 665-6575 or by email at [dertugrul@aandmengineering.com](mailto:dertugrul@aandmengineering.com). Thank you very much for your assistance with this matter.

Respectfully,  
**A&M Engineering and Environmental Services, Inc.**

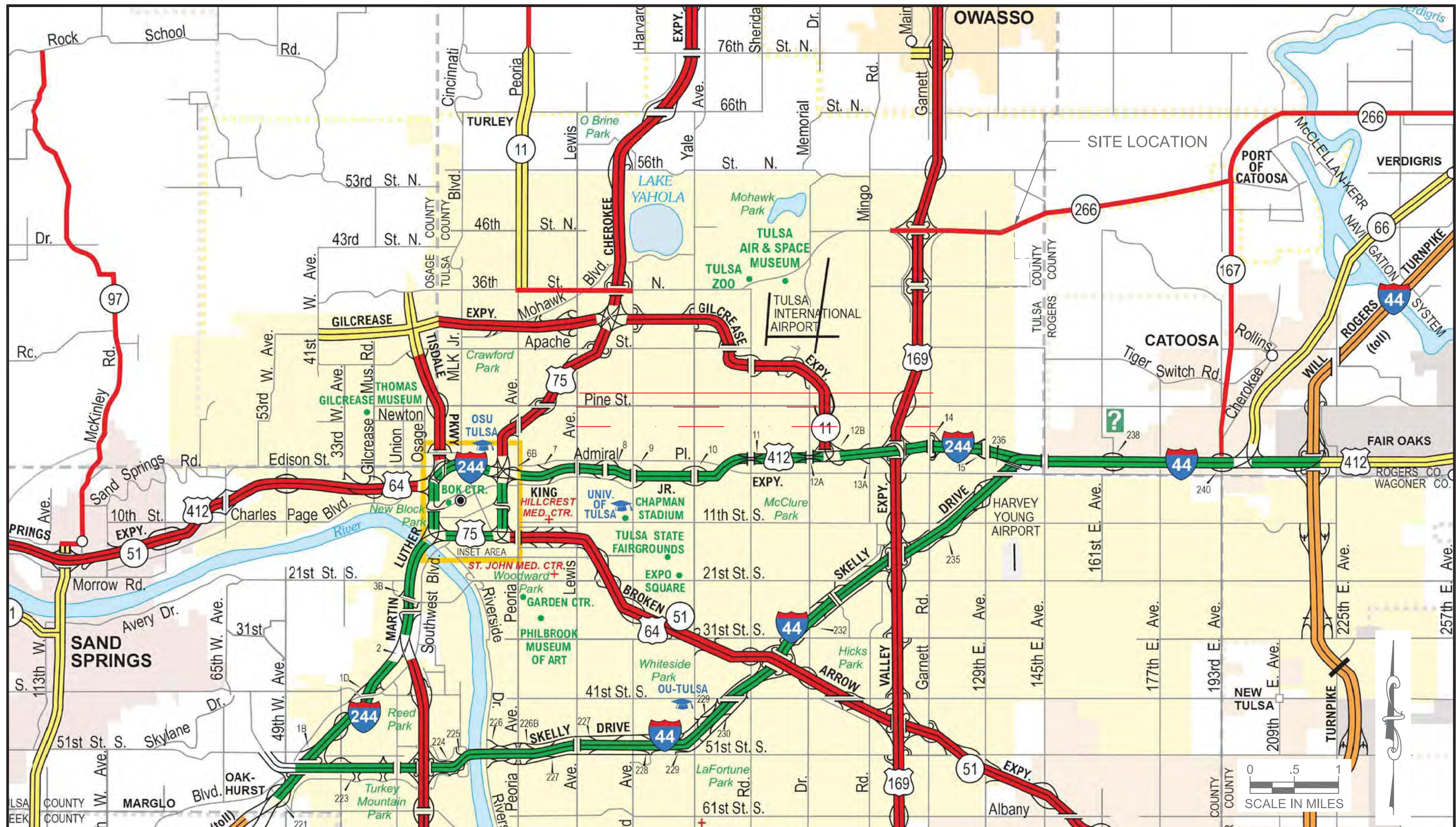
A handwritten signature in black ink, reading "Deren M Ertugrul". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

Deren M. Ertugrul, P.E.  
Project Manager

Attachment: Figures

cc: Mr. Kristopher McClanahan, APAC-Central, Inc.  
Mr. Biff Huckaby, APAC-Central, Inc.





## SITE LOCATION MAP

**APAC EAST QUARRY C&D LANDFILL  
TULSA, OKLAHOMA**

[illegible]

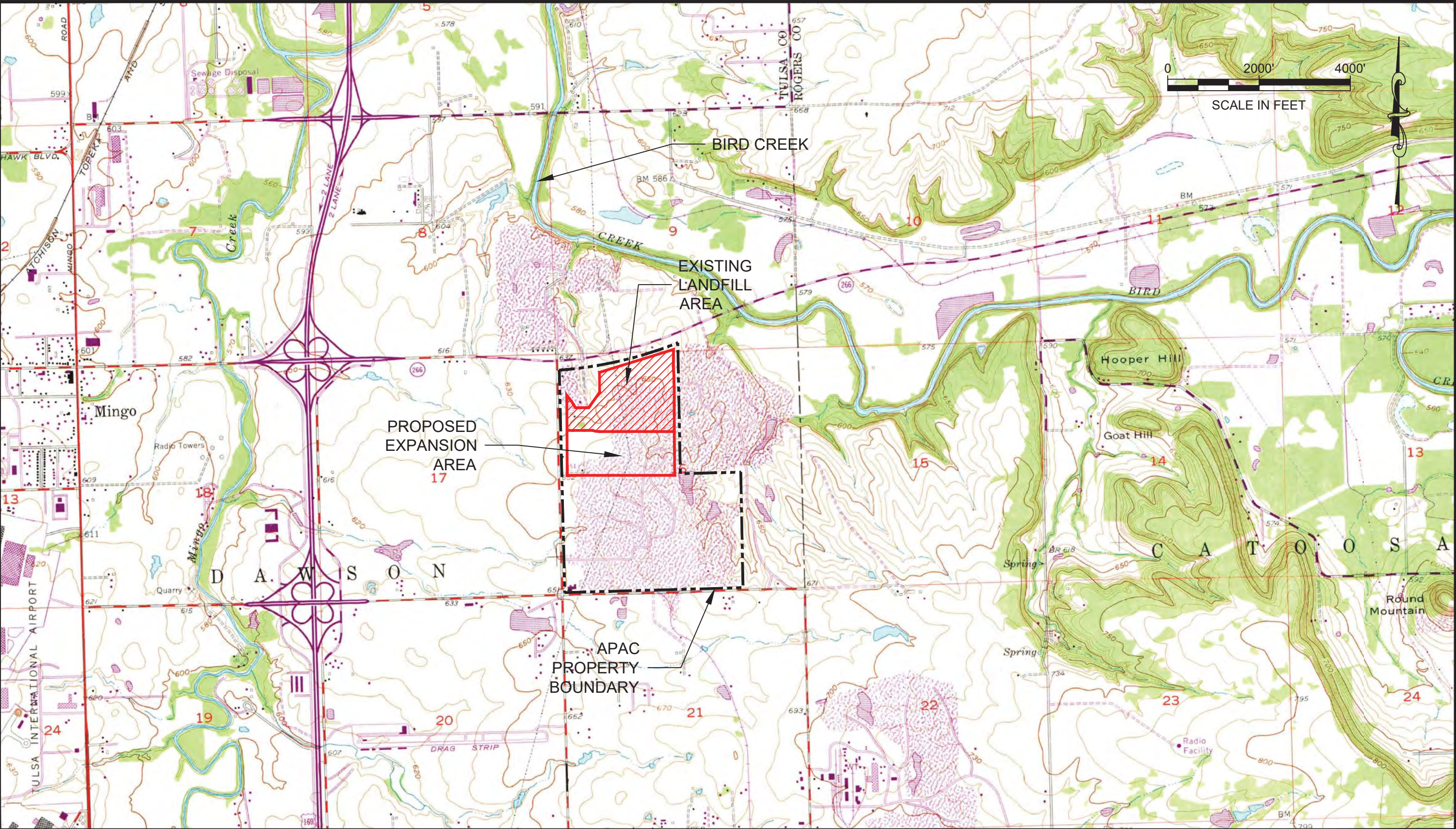
**A & M ENGINEERING AND  
ENVIRONMENTAL SERVICES, INC.**

---

**ENGINEERING – ENVIRONMENTAL – CONSTRUCTION**

DRAWN: PAL		CHECKED BY: DME	MATERIALS BY:	ENGINEER:	APPROVED BY: DME	SCALE:	PROJECT NUMBER:	DRAWING NUMBER:	REV:
DATE: 11/23/2016	DATE: 11/23/2016	DATE:	DATE:	DATE: 11/23/2016	NOTED	1800-043	FIGURE 1		






GENERAL NOTES

1) BASE MAP SOURCE: USGS 7.5 MINUTE MINGO, OKLAHOMA QUADRANGLE, 1955, PHOTO REVISED 1973.

REVISIONS									
NO.	DESCRIPTION	BY	CHECKED	DATE	NO.	DESCRIPTION	BY	CHECKED	DATE



**A & M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.**

ENGINEERING - ENVIRONMENTAL - CONSTRUCTION

DRAWN: PAL	CHECKED BY: DME	MATERIALS BY:	ENGINEER:
DATE: 11/23/2016	DATE: 11/23/2016	DATE:	DATE:

**TOPOGRAPHIC SITE MAP**

**PROPOSED LANDFILL EXPANSION**

**APAC EAST QUARRY C&D LANDFILL**

**TULSA, OKLAHOMA**

APPROVED BY: DME	SCALE: NOTED	PROJECT NUMBER: 1800-043	DRAWING NUMBER: FIGURE 2	REV:
DATE: 11/23/2016				



## Deren Ertugrul

---

**From:** Poage, Cathy [Cathy.Poage@owrb.ok.gov]  
**Sent:** Friday, January 06, 2017 10:53 AM  
**To:** Deren Ertugrul  
**Subject:** Public Water Supply, APAC East Quarry C&D Landfill Expansion  
**Attachments:** 12-15-2016b A-M Eng - Tulsa Landfill Expansion - Tulsa Co.pdf

Mr. Ertugrul,

Please find attached a project review regarding the project in the Subject line above.

I was waiting for more info from my main office in OKC, that's why I am just now getting back with you on this.

On January 3, I received an email from our Interim Division Chief, P & M Division, Kent Wilkins, who said that I should refer you to ODEQ for Public Water Supply and Wellhead Protection information. That is DEQ's jurisdiction.

My Project Review is regarding Floodplain.

Thank you! Sorry for the delay!

Cathy L. Poage, CFM  
Oklahoma Water Resources Board  
Woodward Field Office  
2411 Williams Avenue, Ste. 116  
Woodward, OK 73801  
580-256-1014  
580-256-1015 fax







STATE OF OKLAHOMA  
WATER RESOURCES BOARD  
[www.owrb.ok.gov](http://www.owrb.ok.gov)

OKLAHOMA WATER RESOURCES BOARD  
Planning & Management Division  
Oklahoma City, OK

## PUBLIC NOTICE REVIEW

     We have no comments to offer.   X   We offer the following comments.

**WE RECOMMEND THAT YOU CONTACT THE LOCAL FLOODPLAIN ADMINISTRATOR FOR POSSIBLE PERMIT REQUIREMENTS FOR THIS PROJECT.** THE OWRB WEB SITE, [www.owrb.ok.gov](http://www.owrb.ok.gov), contains a directory of floodplain administrators and is located under forms/floodplain management/floodplain administrators, listed alphabetically by name of community. **If this development would fall on STATE OWNED or operated property, a floodplain development permit is required from OWRB.** The Chapter 55 Rules and permit application for this requirement can be found on the OWRB web site listed above. If this project is proposed in a non-participating community, try to ensure that this project is completed so that it is reasonably safe from flooding and so that it does not flood adjacent property if at all possible.

**Reviewer:** Cathy L. Poage, CFM

**Date:** 12/15/2016

**Project Name:** Proposed 55-acre Landfill Expansion, Located in rock quarry, adjacent to and S of existing landfill permit area, in NW 1/4 of Section 16, T20N, R14EIM, Tulsa County, OK

**FIRM Name:** A & M Engineering & Environmental Services, Inc., Deren M Ertugrul, PE  
**CC:** Terry West CFM FPA Tulsa County; Laura Hendrix CFM FPA City of Tulsa

\* City of Tulsa and Tulsa County participate in the NFIP and has a floodplain development permitting system. Please see above paragraph.

[Download Results to CSV](#)

(ALT-D)

[New Search](#)

(ALT-N)

[Graph Water Levels](#)

(ALT-G)

[Save Wells for Graphing](#)

(ALT-W)

[View Drought Monitoring Map](#) and Water Level Graphs[Help & Search Results Key](#)

Search Results for 2-6,7-11,14-18,19-23,27-30, 20N, 14E1

Displaying Results 1 through 3 of 3.

Well ID	County	Owner Name	Qtrs	SEC-TWP-RGE	Date Const	Well Type	Use	TD (ft)	Static WL	First Zone	Meas. WL	Est. Yld	WL Graph
<a href="#">13198</a>	Tulsa	Dan Walker	NESWNW	04-20N-14E1	03/19/84	Groundwater Well	Domestic	21	n/a	13	n/a	2	<input type="checkbox"/>
<a href="#">13199</a>	Tulsa	Perry Greene	NWNESW	09-20N-14E1	10/12/83	Groundwater Well	Domestic	57	n/a	12	n/a	1.5	<input type="checkbox"/>
<a href="#">22447</a>	Tulsa	N/A	NWNWNW	20-20N-14E1	11/06/90	Groundwater Well	Domestic	34	n/a	12	n/a	8	<input type="checkbox"/>

[Help & Search Results Key](#)

This search does not necessarily contain information about all of the water wells within the area of interest. The multi-purpose well completion report database consists of information submitted to the Board for all well data reported by licensed firms since 1982 and monitoring well data reported since 1988. There could be other wells in the area, which are not included in our database. Wells drilled prior to the licensing requirements for well drillers would not necessarily have had a well log submitted to the OWRB. A field survey may need to be conducted to verify the presence or absence of other water wells.

The Oklahoma Water Resources Board does not guarantee the accuracy of the data shown in the well completion records. Data entered into the database are as reported by the well drillers and much of the data have not been field verified for accuracy. If any errors in the records are discovered, please bring them to our attention so that corrections to the database may be made.

[contact OWRB](#) | [disclaimer](#)[Visit OK.gov, the Official Website of the State of Oklahoma.](#)

©1998-2003, Oklahoma Water Resources Board

**STATE OF OKLAHOMA  
OKLAHOMA WATER RESOURCES BOARD**

**Water Well Record Search**

This enclosed information is the result of researching all multi-purpose completion reports and well locations listed in the Oklahoma Water Resources Board files. The multi-purpose completion report database consists of information submitted to the Board for all well data reported by licensed firms since 1982 and monitoring well data reported since 1988.

The well descriptions provided do not represent all water wells completed within the area of the search. Wells drilled before the licensing and reporting requirements for water well drillers are exempt from reporting. Wells are occasionally drilled by unlicensed firms or by individual landowners and not reported are not included in the database. For a complete inventory of water wells a visual search of the lands of interest should be done to supplement this well record search.

The Oklahoma Water Resources Board does not guarantee the accuracy of the data listed on the multi-purpose well completion form. Data entered into the database is taken directly from the form and is as reported by the well drillers and many of the forms have not been field verified for accuracy. If any errors in the records are discovered, please bring them to our attention so that corrections to the database may be made.

The amount listed due on this form includes a research time and copying fee plus postage if mailed. This amount is due upon receipt of the information.

Detach and Return With Payment

**INVOICE**

Invoice No.

DIVISION

<i>5-5924</i>	Planning & Management Division
---------------	--------------------------------

Sold To: Name or Organization

Date:

<i>GB Mc Associates</i>	<i>3-7-2000</i>
-------------------------	-----------------

Address

<i>Attn: Tom Blachy</i>		
<i>3840 103rd E. Ave., Ste 210</i>		

City

State

ZIP

<i>Julsa</i>	<i>OK</i>	<i>74146</i>
--------------	-----------	--------------

Quantity	Description	Amount
1	Research Time [\$10 per hour (minimum 1 hour charge)]	10.00
3	Pages [\$0.25 per page]	.75
	Postage	
	TOTAL	10.75

**PLEASE REMIT PAYMENT TO:**

Oklahoma Water Resources Board  
3800 N. Classen Blvd.  
Oklahoma City, OK 73118



**GBM<sup>o</sup> & Associates****Tulsa Branch Office****3840 S 103<sup>rd</sup> E Ave, Suite 210****Tulsa, OK 74146****(918) 384-7077 • Fax (918) 384-7078****FAX****To: Virginia Roy****From: Tom Blachly****Fax: (405) 530-8900****Pages: 1****Phone:****Date: 3/06/00****Project:****Project No.:****Re: Groundwater Well Completion Report****• Comments:**

Hello Virginia! Glover said you're in charge of well information. I knew you would take over there someday.

We are putting together an application for a solid waste landfill in Northeast Tulsa County and need completed well information. The particulars are such:

Information Needed:

1. Printout of Well Information (location, owner, depth, use, etc.)
2. Multi-purpose completion reports
3. If you have any groundwater quality information, that would be helpful also

Area Covered:

- Legal Description of Landfill: All in Section 16, Township 20N, Range 14E, Tulsa Co. comprised of the SW/4, the W/2 of the SE/4, the SW/4 of the NE/4, the E/2 of the NW/4, and the E/2 of the NW/4 of the NW/4
- Need information extending a minimum of 2 miles from location  
*no water wells 20N 14E 2 miles*  
*2, 3, 5, 6, 7, 8, 10, 11, 12, 13, 21 thru 26, 27 thru 30*

Please call me if you have any questions, and just mail the items to the address shown above. Take care and thanks for your assistance.

*21N 14E*  
*32, 33, 34*



White — Water Resources Board  
Canary — Drillers Copy  
Pink — Drillers Copy

STATE OF OKLAHOMA  
WATER RESOURCES BOARD  
1000 N.E. 10th St., P.O. Box 53585  
Oklahoma City, Oklahoma 73152

Application No. \_\_\_\_\_  
Aquifer \_\_\_\_\_  
Steam System Code \_\_\_\_\_  
Use Code \_\_\_\_\_  
County \_\_\_\_\_  
(Official Use Only)

MULTI-PURPOSE WATER WELL REPORT

#13198  
1. OWNER DAN WALLER ADDRESS 1152 S. 120<sup>th</sup> E. AVE  
TULSA 74128 PHONE 437-3371

2. LEGAL DESCRIPTION OF WELL  
NE  $\frac{1}{4}$  of SW  $\frac{1}{4}$  of NW  $\frac{1}{4}$  of sec. 4; TWP. 20 N S. Rge. 14  
EIM  
WIM  
ECM; COUNTY TULSA

3. TYPE OF WORK

☒ New Well ☐ Plugging  
☐ Reconditioning Work ☐ Test

4. PROPOSED / PAST USE

☒ Domestic ☐ Irrigation ☐ Stock  
☐ Municipal ☐ Industrial ☐ Test

5. DRILLING METHOD

☒ Rotary ☐ Rev. Rotary  
☐ Cable ☐ Other \_\_\_\_\_

6. LOG

Material	From	To	Saturated ✓
SOIL	0	1	
SANDSTONE & CLAY	1	5	
LIMESTONE	5	6	
SANDSTONE	6	7	
LIMESTONE	7	7 1/2	
SANDSTONE	7 1/2	8	
LIMESTONE	8	10	
SHALE	10	10 1/2	
LIMESTONE	10 1/2	11	
SANDSTONE	11	12	✓
SHALE	12	13 1/2	✓
LIMESTONE	13 1/2	18	✓
SANDSTONE	18	21	✓

7. NEW WELL CONSTRUCTION DATA

Dates: Started 3-17-84 Completed 3-19-84  
Contractor CRAIG DRILLING  
Driller CRAIG TREIBER  
Diameter Hole 6 1/4 in. Total Depth 21 ft.

CASING RECORD

Diameter 4 in. From +2 ft. To -21 ft.  
Surface Seal: ☒ Yes ☐ No Type: Cement  
Depth of Seal: 1 1/8 ft.  
Gravel Packed: 3/8  
Gravel Packed From 21 ft. to 11 ft.  
Amount Used: APX 800 LBS.

PERFORATION RECORD

Type NOV SLOTS From 11 ft. To 21 ft.  
Size \_\_\_\_\_ From \_\_\_\_\_ ft. To \_\_\_\_\_ ft.  
" \_\_\_\_\_ From \_\_\_\_\_ ft. To \_\_\_\_\_ ft.

8. WELL TEST DATA

Static Water Level Below Land Surface 13 ft.  
If Artesian: Flows \_\_\_\_\_ gpm.  
Water Temp. 59 °C/F Quality good

BAILER TEST

Drawdown 2 ft. After Pumping 1 hrs. At 2 gpm.  
Size of Bailer: 1.5 GAL gal. TAKE APX 1 1/2 GAL/TRIP  
WITH THIS STATIC LEVEL

PUMPING TEST

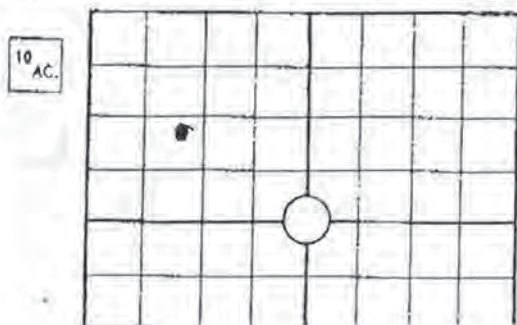
Drawdown \_\_\_\_\_ ft. After Pumping \_\_\_\_\_ hrs. At \_\_\_\_\_ gpm.

9. PLUGGING DATA

Date Plugged \_\_\_\_\_  
Backfilled With \_\_\_\_\_ Material To \_\_\_\_\_ ft.  
Grouted or Cemented From \_\_\_\_\_ ft. To \_\_\_\_\_ ft.  
Plot Location in Item 11. Show Distances From 2 Section Lines.

10. RECONDITIONING WORK

1. PLAT



--	--	--	--	--	--	--	--	--	--

NE 1/4 of SW 1/4 of NW 1/4 of SEC 4

WP 20 S: RGE 14 (EIM) WIM, ECM

2. P INFORMATION

Pump Type N/A - To be installed  
 Power Source By owner  
 Rated Capacity \_\_\_\_\_ gpm.  
 Depth of Bowls or Cylinder \_\_\_\_\_ ft.

☐ Replaced Casing From \_\_\_\_\_ ft. To \_\_\_\_\_ ft.  
☐ Replaced Screen From \_\_\_\_\_ ft. To \_\_\_\_\_ ft.  
 Deepened Well From \_\_\_\_\_ ft. To \_\_\_\_\_ ft.  
 Redeveloped Well By \_\_\_\_\_

13. CERTIFICATION

The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Name CRAIG TREIBER License # WD 238  
 Address 6625 E 103 ST. S. TULSA Phone # 299-7909  
 Signed Craig L. Treiber Date 3-19-84

USE ADDITIONAL SHEETS IF NECESSARY



name - Water Resources Board  
January - Drillers Copy  
Pink - Drillers Copy

OR WATER RES BD

STATE OF OKLAHOMA  
WATER RESOURCES BOARD  
1000 N E. 10th St., P.O. Box 53585  
Oklahoma City, Oklahoma 73152

Application No. 004/005  
Aquifer \_\_\_\_\_  
Steam System Code \_\_\_\_\_  
Use Code \_\_\_\_\_  
County \_\_\_\_\_  
(Official Use Only)

# 13199

MULTI-PURPOSE WATER WELL REPORT

Tulsa

OWNER LEO PERRY GREENE ADDRESS RT 2 Box 93  
OWASSO PHONE 272-5478  
LEGAL DESCRIPTION OF WELL  
NW 1/4 of NE 1/4 of S41 1/4 of sec. 9 TWP. 20 S. Rge. 14 EIM  
ECM; COUNTY TULSA WIM

TYPE OF WORK  
☒ New Well ☐ Plugging  
☐ Reconditioning Work ☐ Test  
4. PROPOSED PAST USE  
☒ Domestic ☐ Irrigation ☐ Stock  
☐ Municipal ☐ Industrial ☐ Test  
5. DRILLING METHOD  
☒ Rotary ☐ Rev. Rotary  
☐ Cable ☐ Other

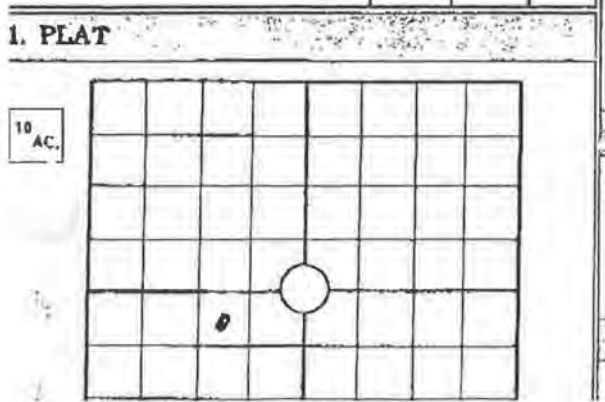
6. LOG

Material	From	To	Saturated
CLAY	0	17	
SHALE	17	57	✓

NOTE: WATER VEIN  
APX 37'

7. NEW WELL CONSTRUCTION DATA  
Dates: Started 10/12/83 Completed 10/12/83  
Contractor CHABAR DRILLING  
Driller CRAIG TRAILER  
Diameter Hole 6 1/4 in. Total Depth 57 ft.  
CASING RECORD  
Diameter From To  
4 in. 0 ft. 20 ft.  
in. ft. ft.  
Surface Seal: ☒ Yes ☐ No Type: Cement  
Depth of Seal: 19 ft.  
Gravel Packed: \_\_\_\_\_  
Gravel Packed From \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
Amount Used: \_\_\_\_\_  
PERFORATION RECORD  
Type open hole From \_\_\_\_\_ ft. To \_\_\_\_\_ ft.  
Size \_\_\_\_\_ From \_\_\_\_\_ ft. To \_\_\_\_\_ ft.  
" \_\_\_\_\_ From \_\_\_\_\_ ft. To \_\_\_\_\_ ft.

8. WELL TEST DATA  
Static Water Level Below Land Surface 12 ft.  
If Artesian: Flows \_\_\_\_\_ gpm.  
Water Temp. 60 °C/F Quality good  
BAILER TEST  
Drawdown \_\_\_\_\_ ft. After Pumping \_\_\_\_\_ hrs. At \_\_\_\_\_ gpm.  
Size of Bailer: \_\_\_\_\_ gal.  
AIR LIFT PUMPING TEST  
Drawdown \_\_\_\_\_ ft. After Pumping 1 hrs. At 1-1/2 gpm.



9. PLUGGING DATA  
Date Plugged \_\_\_\_\_  
Backfilled With \_\_\_\_\_ Material To \_\_\_\_\_ ft.  
Grouted or Cemented From \_\_\_\_\_ ft. To \_\_\_\_\_ ft.  
Plot Location in Item 11. Show Distances From 2 Section Lines.  
10. RECONDITIONING WORK  
Date Completed 1

FORM 4-1-10 10



White—Water Resources Board  
 Canary—Driller's Copy  
 Pink—Customer's Copy

**MULTI-PURPOSE WELL REPORT**  
 OKLAHOMA WATER RESOURCES BOARD  
 1000 N.E. 10th St., P.O. Box 53585  
 Oklahoma City, Oklahoma 73152

# 22447

1. WELL OWNER RONNIE T. MILLER PHONE (918) 266-3347  
 (EIM) Circle One  
 WIM  
 2. LEGAL DESCRIPTION NW  $\frac{1}{4}$  of NW  $\frac{1}{4}$  of NW  $\frac{1}{4}$  of sec. 20; TWP. 20 (N) S; RGE 14E ECM COUNTY ROGERS Julie  
 FINDING LOCATION 1 Mile north of Intersection of Rice & Frisco St. Catoosa, Oklahoma  
 Blocks or distance(s) from given point(s).

<b>3. TYPE OF WORK</b> <input checked="" type="checkbox"/> New Well <input type="checkbox"/> Reconditioning Work <input type="checkbox"/> Monitoring <input type="checkbox"/> Test Hole <input type="checkbox"/> Other _____	<input type="checkbox"/> Plugging	<b>4. USE</b> <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Stock <input type="checkbox"/> Monitoring <input type="checkbox"/> Test Hole <input type="checkbox"/> Other _____	<b>NON-DOMESTIC</b> <input type="checkbox"/> Irrigation <input type="checkbox"/> Municipal <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Other _____	<b>5. DRILLING METHOD</b> <input checked="" type="checkbox"/> Fluid Rotary <input type="checkbox"/> Cable <input type="checkbox"/> Air Rotary <input type="checkbox"/> H.S. Auger <input type="checkbox"/> Rev. Rotary <input type="checkbox"/> Other _____
---	-----------------------------------	--	--	---

6. LITHOLOGIC LOG			
Material	From	To	Saturated
Clay, silty	0	12	25
Soft broken sandstone	12	29	100
Shale, sandy, tan, gray	29	34	25
Bottom of well			

## 7. LOCATION PERMIT

If this well is Non-Domestic, has the location been permitted?

☐ Yes ☐ No Permit No. \_\_\_\_\_

## 8. NEW WELL CONSTRUCTION DATA

DATES: Started 11-5-90 Completed 11-6-90Contractor Okland Development CorporationDriller G. PryorDiameter Hole 10" in. Total Depth 34 ft.

## CASING RECORD

Diameter	From	To
Surface Pipe	_____ in.	_____ ft.

Well Casing 5 PVC in. + 1 ft ft. 34 ft.Cement Grout Surface Seal? ☒ Yes ☐ NoType of Surface Seal: Cement Depth of Seal: 10 ft.

## GRAVEL PACK:

Gravel Packed From 11 ft. to 34 ft.Amount Used: 1000 lb

## PERFORATION RECORD

Type/Size	From	To
<u>030</u>	<u>20</u> ft.	<u>34</u> ft.
	_____ ft.	_____ ft.
	_____ ft.	_____ ft.

## 9. WELL TEST DATA

Static Water Level

Below Land Surface 12 ft.Approximate Yield 8 gpm.

If Artesian: Flows \_\_\_\_\_ gpm.

Pump Type \_\_\_\_\_

Power Source \_\_\_\_\_

Rated Capacity \_\_\_\_\_ gpm.

Depth of Bowls or Cylinder \_\_\_\_\_ ft.

## 10. PLUGGING DATA

Date Plugged \_\_\_\_\_

Backfilled With \_\_\_\_\_ Material To \_\_\_\_\_ ft.

Grouted or Cemented From \_\_\_\_\_ Ft. To \_\_\_\_\_ ft.

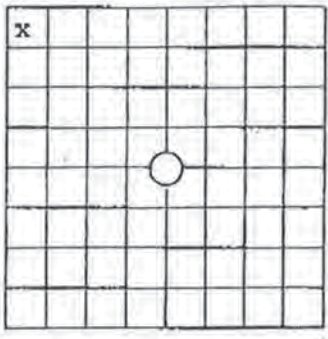
## 11. RECONDITIONING WORK

Date Completed \_\_\_\_\_



13. PLAT

10  
ac



Replaced Screen From \_\_\_\_\_ ft. To \_\_\_\_\_ ft.  
Deepened Well From \_\_\_\_\_ ft. To \_\_\_\_\_ ft.  
Redeveloped Well By \_\_\_\_\_

14. CERTIFICATION

The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Name Okland Development Corporation License # WD 141  
Address P.O. Box 14344 Tulsa, OK Phone # (918) 592-2677  
74159-1344  
Signed [Signature] Date 11/6/90

# OKLAHOMA WATER RESOURCES BOARD

440 S. Houston, Room #2  
Tulsa, OK 74127  
918-581-2924  
fax 918-581-2754

[owrbtuls@onenet.net](mailto:owrbtuls@onenet.net)  
[www.state.ok.us/~owrb](http://www.state.ok.us/~owrb)

## FAX TRANSMISSION COVER SHEET

Date: MARCH 5, 2001  
To: BILL SADLER  
Fax #: 501.455.4547  
Re: 16.9, T20N, R14E.M TULSA CO., OKLAHOMA  
Sender: GAVIN BRADY

You should receive 1 page(s), including cover sheet.

OWRB RECORDS INDICATE NO EXISTING OR PERMITTED SURFACE WATER PUBLIC WATER SUPPLY WITHIN 1 MILE DOWNSTREAM OR ANY PUBLIC WATER SUPPLY WELLS WITHIN 2 MILES OF MENTIONED LEGAL DESCRIPTION. CONTACT THE LOCAL DEPARTMENT OF ENVIRONMENTAL QUALITY OFFICE (DEQ) FOR WATER AND WASTEWATER COLLECTION, TREATMENT OR DISTRIBUTION FACILITIES. PHONE # 918-581-2222

**GEC****GENESIS ENVIRONMENTAL CONSULTING, INC.**

11400 West Baseline Road Little Rock, Arkansas 72209

Phone: (501) 455-2199

Fax: (501) 455-4547

March 5, 2001

Mr. J. Gavin Brady, CFM  
Oklahoma Water Resources Board  
440 South Houston, Room 2  
Tulsa, Oklahoma 74127

**SUBJECT: Search for Public Water Supply Facilities Near Proposed Solid Waste Landfill**

Dear Mr. Brady:

We are preparing a permit application for a proposed solid waste landfill to be located in a quarry on the northeast side of the City of Tulsa. The proposed landfill is located immediately south of State Highway 266 and Bird Creek at the eastern city limit within Sections 16 and 9 of Township 20 N, Range 14 E1M (see attached figures).

Collection, treatment, and distributions facilities for public water and wastewater systems must be located within the vicinity of the proposed landfill as listed below:

- 1) Existing or permitted surface water Public Water Supply within 1 mile downstream
- 2) Public water and wastewater collection, treatment or distribution facilities within 1 mile
- 3) Public Water Supply well within 2 miles

It appears that similar requests were made of your office in May 1996 and January 2000 for adjacent landfills.

Thank-you for your time and effort dealing with this matter. If you need further information or have any comments or questions, please call us at (501) 455-2199 or e-mail us at [gecenv@swbell.net](mailto:gecenv@swbell.net).

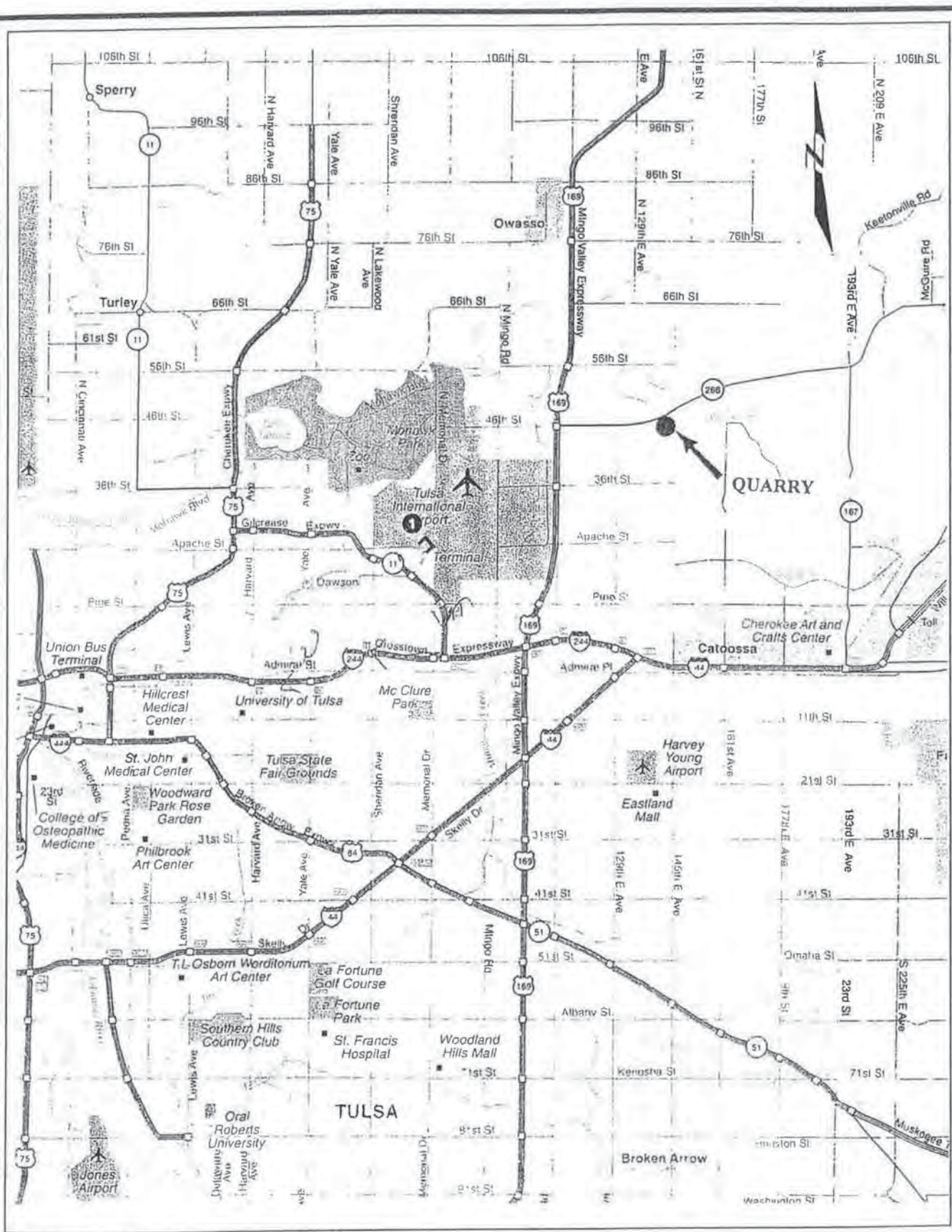
Sincerely,

GENESIS ENVIRONMENTAL CONSULTING, INC.



Bill Sadler  
Project Hydrogeologist





## **APPENDIX D-5**

### Wetlands Correspondence



**A & M ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

10010 E. 16<sup>TH</sup> STREET  
TULSA, OKLAHOMA 74128-4713

ENGINEERING • ENVIRONMENTAL • CONSTRUCTION  
(918) 665-6575 • FAX (918) 665-6576  
EMAIL: aandm@aandmengineering.com

November 22, 2016

Registered Mail Return Receipt

Mr. Trey Lam  
Executive Director  
Oklahoma Conservation Commission  
2800 North Lincoln Blvd., Suite 160  
Oklahoma City, Oklahoma 73105

**RE: Wetland Area Statement  
APAC-Central, Inc. C&D Landfill Expansion  
Tulsa County, Oklahoma**

Dear Mr. Lam:

A&M Engineering and Environmental Services, Inc. (A&M Engineering) is in the process of preparing a landfill expansion permit application, on behalf of APAC-Central, Inc. (APAC), to expand the existing APAC Construction and Demolition (C&D) Landfill located in Tulsa, Oklahoma. The existing landfill facility is located northeast of the City of Tulsa, east of 129<sup>th</sup> Street and south of State Highway 266. The proposed 55-acre lateral expansion area is located within an existing rock quarry adjacent to and south of the existing permit area in the Northwest Quarter (1/4) of Section 16, Township 20 North, Range 14 East of the Indian Base and Meridian. For your reference, a General Site Location Map and Topographic Site Map are provided as Figures 1 and 2 respectively.

The purpose of this letter is to confirm compliance with the Oklahoma Department of Environmental Quality (DEQ) landfill location restrictions as set forth in Oklahoma Administrative Code (OAC) 252:515-5-32. OAC 252:515-5-32(d) states that “no new waste management or disposal areas of a solid waste disposal facility shall be located in wetland areas as designated by the Oklahoma Conservation Commission or other appropriate agency.”

A review of available information has not identified any wetland areas within the proposed expansion area. However, in order to verify compliance, A&M Engineering and APAC are requesting a written confirmation from the Oklahoma Conservation Commission stating that the proposed site is not located within a wetland as determined by the Commission.

If you have any questions regarding this request, please do not hesitate to contact me by telephone at (918) 665-6575 or by email at [dertugrul@aandmengineering.com](mailto:dertugrul@aandmengineering.com). Thank you very much for your assistance with this matter.



Mr. Trey Lam  
November 22, 2016  
Page 2 of 2

Respectfully,  
**A&M Engineering and Environmental Services, Inc.**

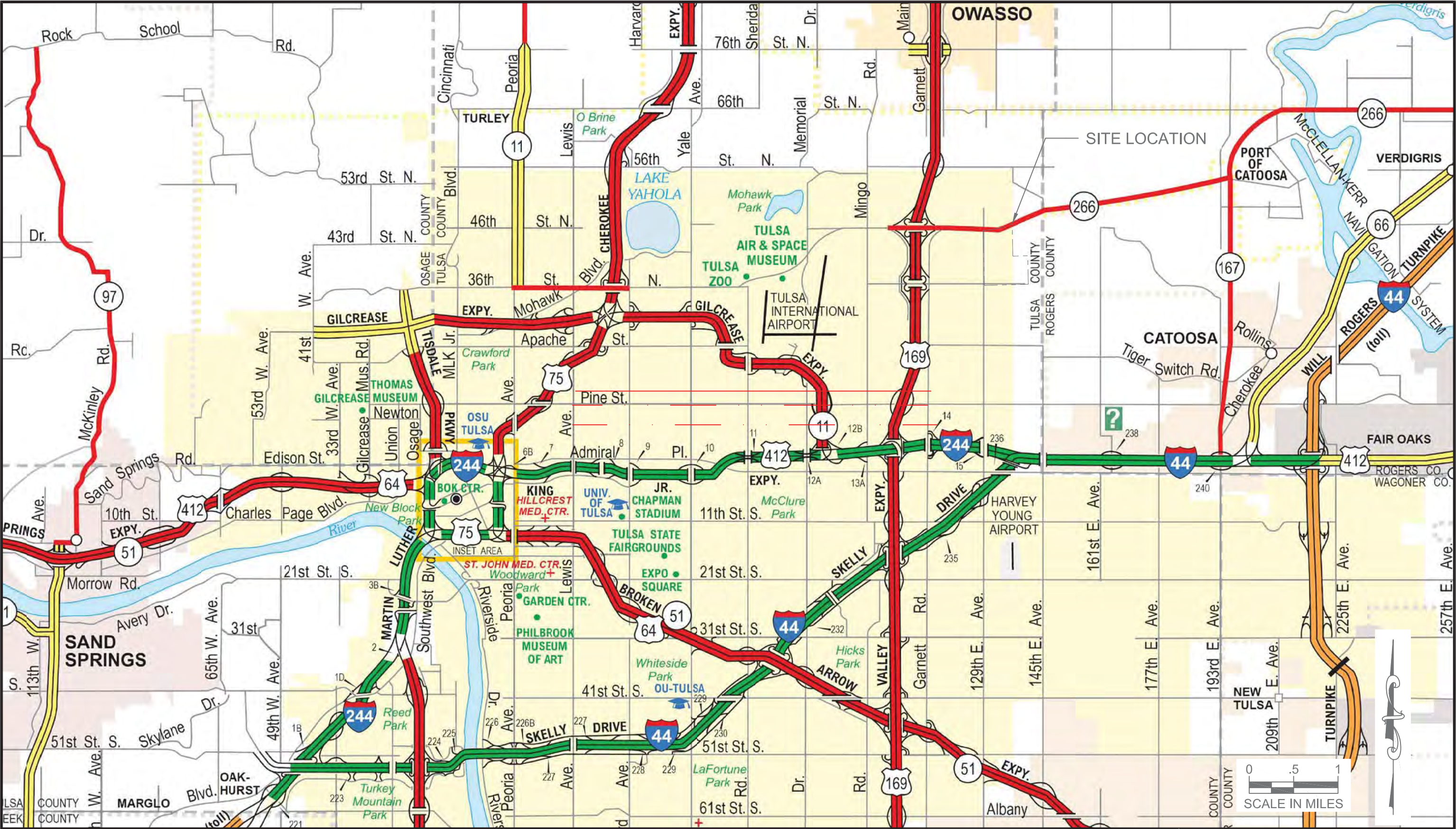
A handwritten signature in black ink, reading "Deren M Ertugrul". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

Deren M. Ertugrul, P.E.  
Project Manager

Attachment: Figures

cc: Mr. Kristopher McClanahan, APAC-Central, Inc.  
Mr. Biff Huckaby, APAC-Central, Inc.





GENERAL NOTES		REVISIONS								A & M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.		SITE LOCATION MAP				
1) MAP FROM CITY OF TULSA WEBSITE.		NO.	DESCRIPTION	BY	CHECKED	DATE	NO.	DESCRIPTION	BY	CHECKED	DATE					
												APAC EAST QUARRY C&D LANDFILL TULSA, OKLAHOMA				
												ENGINEERING - ENVIRONMENTAL - CONSTRUCTION				
												DRAWN: PAL CHECKED BY: DME MATERIALS BY: ENGINEER: APPROVED BY: DME SCALE: PROJECT NUMBER: DRAWING NUMBER: REV:				
												DATE: 11/23/2016 DATE: 11/23/2016 DATE: DATE: DATE: DATE: 11/23/2016 NOTED 1800-043 FIGURE 1				







MARY FALLIN  
GOVERNOR

TODD LAMB  
LIEUTENANT GOVERNOR



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TREY LAM  
EXECUTIVE DIRECTOR

LISA KNAUF OWEN  
ASSISTANT DIRECTOR

December 20, 2016

Deren Ertugrul  
Project Manager  
A&M Engineering and Environmental Services, Inc.  
10010 E 16<sup>th</sup> Street  
Tulsa, OK 74128-4713

**RE: Wetland Area Statement  
APAC-Central, Inc C&D Landfill Expansion  
Tulsa County, Oklahoma**

Dear Mr. Ertugrul,

Your request for a wetland determination for the referenced project, as described in your letter of November 22, 2016 has been reviewed using the U.S. Fish and Wildlife Service National Wetlands Inventory. The specific project boundary is not marked on the supplied map, but you suggest a 55 acre lateral expansion. This 55 acre lateral expansion will fall within a mapped area including approximately 250 acres adjacent to the current landfill. Without understanding the specific 55 acre expansion area, it appears that several designated excavated wetlands could occur within your proposed project study boundary including an emergent excavated wetland. There are several surface water features present in the area. With a specific project boundary on aerial photography, a better determination of potential impacts could be made. The Oklahoma Conservation Commission's (OCC) determination is that there are potential impacts to wetlands. The OCC cannot make a final determination of wetlands or assess the quality of wetlands if present. Due to the potential impact on wetland resources, an on-site investigation may be needed. Consequently, we recommend you contact the U.S. Army Corps of Engineers for a determination. Their address and phone number is:

U.S. Army Corps of Engineers  
Mr. Andrew Commer  
Chief of Regulatory Branch  
1645 South 101<sup>st</sup> East Avenue  
Tulsa, OK 74128-4629  
918/669-7400

If you have any further questions or concerns, please contact me at 405/522-6908.

Sincerely,

A handwritten signature in blue ink that reads "Brooks K. Tramell".

Brooks Tramell  
Wetlands Program Coordinator  
Water Quality Division

cc: U.S. Army Corps of Engineers  
Wetlands File

OKLAHOMA  
CONSERVATION  
MISSION  
Oklahoma  
1000 N Blvd., Suite 160  
Tulsa, OK 73105-4210

OKLAHOMA CITY  
OK 730  
20 DEC '16  
PM 3 L

neopost<sup>®</sup> DIRECT OVERCO MAIL  
12/20/2016  
US POSTAGE \$000.46<sup>5</sup>  
ZIP 73111  
041L12002765

Deren Ertugrul  
Project Manager  
A & M Engineering and Environmental Services  
10010 E. 16<sup>th</sup> St.  
Tulsa, OK 74128-4713

74128-461110





**A & M ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

10010 E. 16<sup>TH</sup> STREET  
TULSA, OKLAHOMA 74128-4713

ENGINEERING • ENVIRONMENTAL • CONSTRUCTION  
(918) 665-6575 • FAX (918) 665-6576  
EMAIL: aandm@aandmengineering.com

February 13, 2017

Registered Mail Return Receipt

U.S. Army Corps of Engineers  
Mr. Andrew Comer  
Chief of Regulatory Branch  
1645 South 101<sup>st</sup> East Avenue  
Tulsa, Oklahoma 74128-4629

**RE: Wetland Area Statement  
APAC-Central, Inc. C&D Landfill Expansion  
Tulsa County, Oklahoma**

Dear Mr. Comer:

A&M Engineering and Environmental Services, Inc. (A&M Engineering) is in the process of preparing a landfill expansion permit application, on behalf of APAC-Central, Inc. (APAC), to expand the existing APAC Construction and Demolition (C&D) Landfill located in Tulsa, Oklahoma. The existing landfill facility is located within the City of Tulsa city limits, east of 129<sup>th</sup> Street and south of State Highway 266. The proposed 55-acre lateral expansion area is located within an existing rock quarry adjacent to and south of the existing permit area in the Northwest Quarter (1/4) of Section 16, Township 20 North, Range 14 East of the Indian Base and Meridian. For your reference, a General Site Location Map and Topographic Site Map are provided as Figures 1 and 2 respectively.

The purpose of this letter is to confirm compliance with the Oklahoma Department of Environmental Quality (DEQ) landfill location restrictions as set forth in Oklahoma Administrative Code (OAC) 252:515-5-32. OAC 252:515-5-32(d) states that “no new waste management or disposal areas of a solid waste disposal facility shall be located in wetland areas as designated by the Oklahoma Conservation Commission or other appropriate agency.”

Wetlands Mapper V2 GIS system on the U.S. Fish & Wildlife Service website was used by A&M Engineering to review possible wetland area conflicts within the proposed 55-acre lateral expansion area, provided as Figure 3. The GIS map indicates that there is one freshwater pond wetland within the 55-acre lateral expansion area as well as one freshwater pond and one freshwater emergent wetland near the southeastern boundary of the proposed expansion area. Based on the GIS map, these features were mapped in 1980. The extensive mining of the area has completely changed the topography of the area since 1980, and these features, as mapped, no longer exist. The limestone mining has lowered the quarry area up to 100 feet below natural grade.



Mr. Andrew Commer  
February 13, 2017  
Page 2 of 2

A&M Engineering requested a wetland determination from the Oklahoma Conservation Commission (OCC) as required by OAC 252:515-5-32. On December 20, 2016, OCC replied with a letter which includes the following statements "The Oklahoma Conservation Commission's (OCC) determination is that there are potential impacts to wetlands. The OCC cannot make a final determination of wetlands or assess the quality of wetlands if present. Due to the potential impact on wetland resources, an on-site investigation may be needed. Consequently, we recommend you contact the US Army Corps of Engineers for a determination." The full OCC letter is attached.

In order to verify compliance, A&M Engineering and APAC are requesting a written confirmation from the U.S. Army Corps of Engineers (USACE) stating that the proposed site is not located within a wetland.

In addition, please see the attached December 29, 2000 USACE letter, concerning the original C&D landfill permit, which determined that Section 16, Township 20 North, Range 14 East, Tulsa County, Oklahoma contained no jurisdictional wetlands. This letter also noted waterways exiting Section 16. The waterway flowing north toward Bird Creek no longer exists because the mining operation in section 16 lowered the grade up to 100 feet. The pond in the northwest corner of Section 16 is a total impoundment and is pumped to wash aggregate for the quarry operations. A&M Engineering and APAC are additionally requesting a written clarification from the USACE stating that the mapped waterways and the total impoundment are not jurisdictional wetlands.

If you have any questions regarding this request, please do not hesitate to contact me by telephone at (918) 665-6575 or by email at [dertugrul@aandmengineering.com](mailto:dertugrul@aandmengineering.com). Thank you very much for your assistance with this matter.

Respectfully,  
**A&M Engineering and Environmental Services, Inc.**

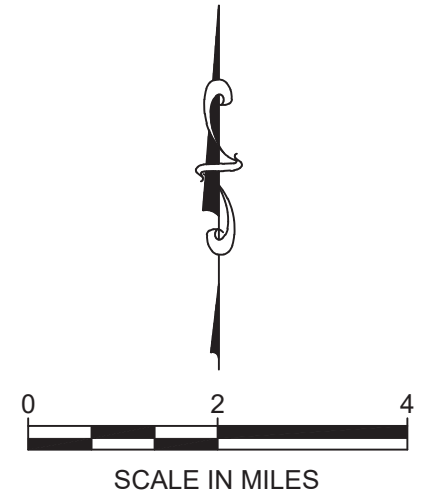
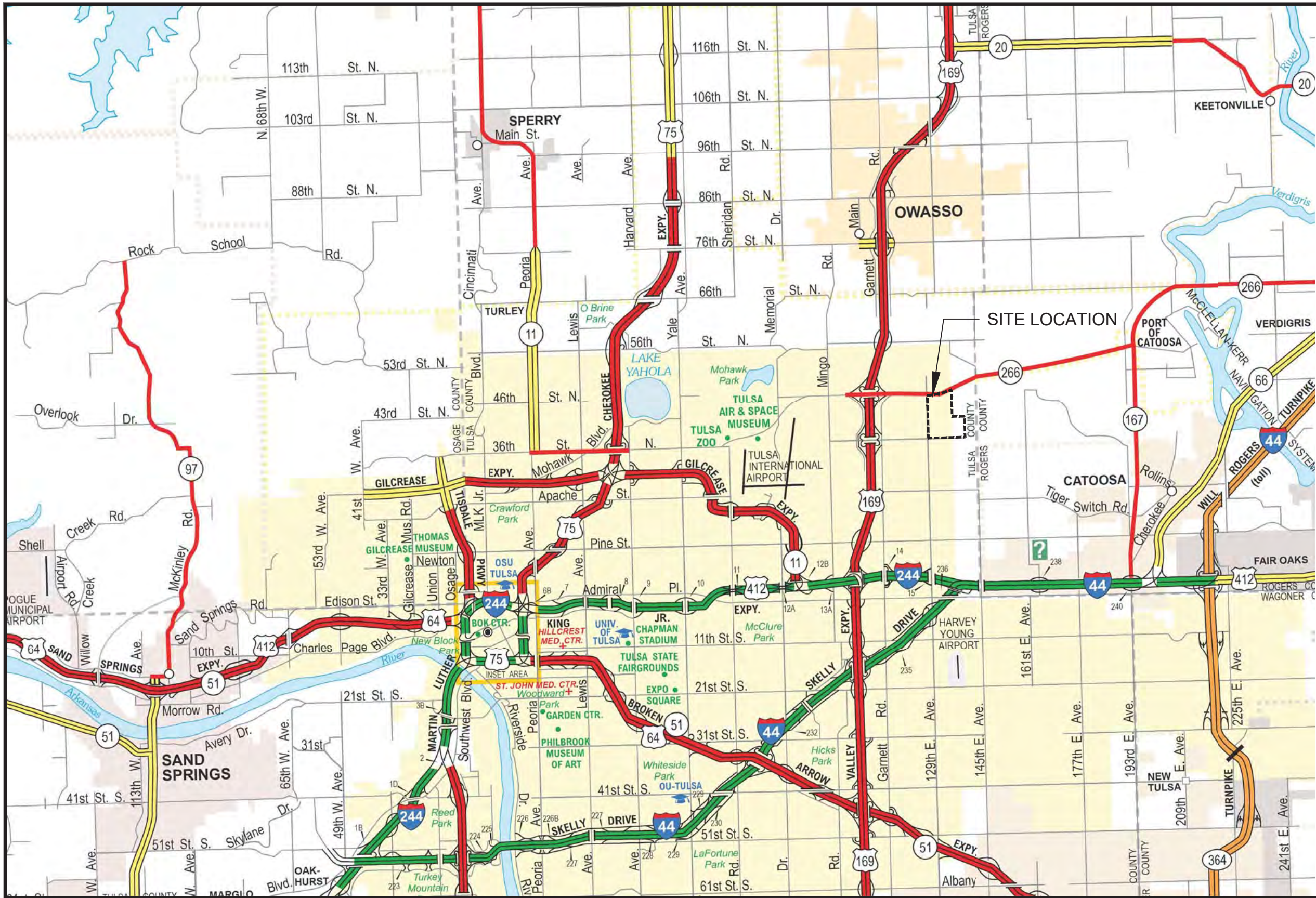


Deren M. Ertugrul, P.E.  
Project Manager

Attachment: Figures 1, 2, & 3  
December 20, 2016 letter from OCC  
December 29, 2000 letter from USACE

cc: Mr. Kristopher McClanahan, APAC-Central, Inc.  
Mr. Biff Huckaby, APAC-Central, Inc.





GENERAL NOTES		REVISIONS										<div><div><div>M</div><div>A &amp; M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.</div><div>ENGINEERING — ENVIRONMENTAL — CONSTRUCTION</div></div></div>				SITE LOCATION MAP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
1) MAP FROM CITY OF TULSA WEBSITE.		NO.	DESCRIPTION	BY	CHECKED	DATE	NO.	DESCRIPTION	BY	CHECKED	DATE					APAC EAST QUARRY C&D LANDFILL TULSA, OKLAHOMA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											









GENERAL NOTES		REVISIONS										<div><div><div><div></div></div><div>A &amp; M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.</div><div>ENGINEERING — ENVIRONMENTAL — CONSTRUCTION</div></div><div><div>DRAWN: PAL</div><div>CHECKED BY: DME</div><div>MATERIALS BY:</div><div>ENGINEER:</div><div>DATE: 12/29/2016</div><div>DATE: 12/29/2016</div><div>DATE:</div><div>DATE:</div></div><div><div>APPROVED BY: DME</div><div>SCALE: NOTED</div><div>PROJECT NUMBER: 1800—043</div><div>DRAWING NUMBER: FIGURE 3</div><div>REV.:</div></div></div>		WETLAND SITE MAP			
1) BASE MAP SOURCE: NATIONAL WETLANDS INVENTORY –V2 MAPPER, ACCESSED DECEMBER 29, 2016.		NO.	DESCRIPTION	BY	CHECKED	DATE	NO.	DESCRIPTION	BY	CHECKED	DATE			PROPOSED LANDFILL EXPANSION			
															APAC EAST QUARRY C&D LANDFILL TULSA, OKLAHOMA		



MARY FALLIN  
GOVERNOR

TODD LAMB  
LIEUTENANT GOVERNOR



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TREY LAM  
EXECUTIVE DIRECTOR

LISA KNAUF OWEN  
ASSISTANT DIRECTOR

December 20, 2016

Deren Ertugrul  
Project Manager  
A&M Engineering and Environmental Services, Inc  
10010 E 16<sup>th</sup> Street  
Tulsa, OK 74128-4713

**RE: Wetland Area Statement  
APAC-Central, Inc C&D Landfill Expansion  
Tulsa County, Oklahoma**

Dear Mr. Ertugrul,

Your request for a wetland determination for the referenced project, as described in your letter of November 22, 2016 has been reviewed using the U.S. Fish and Wildlife Service National Wetlands Inventory. The specific project boundary is not marked on the supplied map, but you suggest a 55 acre lateral expansion. This 55 acre lateral expansion will fall within a mapped area including approximately 250 acres adjacent to the current landfill. Without understanding the specific 55 acre expansion area, it appears that several designated excavated wetlands could occur within your proposed project study boundary including an emergent excavated wetland. There are several surface water features present in the area. With a specific project boundary on aerial photography, a better determination of potential impacts could be made. The Oklahoma Conservation Commission's (OCC) determination is that there are potential impacts to wetlands. The OCC cannot make a final determination of wetlands or assess the quality of wetlands if present. Due to the potential impact on wetland resources, an on-site investigation may be needed. Consequently, we recommend you contact the U.S. Army Corps of Engineers for a determination. Their address and phone number is:

U.S. Army Corps of Engineers  
Mr. Andrew Commer  
Chief of Regulatory Branch  
1645 South 101<sup>st</sup> East Avenue  
Tulsa, OK 74128-4629  
918/669-7400

If you have any further questions or concerns, please contact me at 405/522-6908.

Sincerely,

A handwritten signature in blue ink that reads "Brooks K. Tramell".

Brooks Tramell  
Wetlands Program Coordinator  
Water Quality Division

cc: U.S. Army Corps of Engineers  
Wetlands File



**DEPARTMENT OF ARMY**  
CORPS OF ENGINEERS, TULSA DISTRICT  
1645 SOUTH 101<sup>ST</sup> EAST AVENUE  
TULSA, OKLAHOMA 74128-4609

December 29, 2000

Planning, Environmental, and Regulatory Division  
Regulatory Branch

Ms. Amanda Wilson  
Genesis Environmental Consulting, Inc.  
11400 West Baseline Road  
Little Rock, AR 72209

Dear Ms. Wilson:

This is in reference to your letter of November 22, 2000, to the Oklahoma Conservation Commission. Your letter requested a wetland determination on property located in Section 16, Township 20 North, Range 14 East, Tulsa County, Oklahoma. The area marked in red on the enclosed map denotes the approximate limits of the property examined under this request.

The referenced property contains no jurisdictional wetlands. However, the unnamed tributaries located within the reviewed property, as shown in blue on the enclosed map, are regulated waterways. The placement of dredged or fill material in these waterways would require Department of the Army authorization pursuant to Section 404 of the Clean Water Act (CWA) prior to commencement.


Although no obvious wetland areas are evident, we encourage you to locate your proposed project away from any adjacent waterways. Should you choose to site your operation near any river or creek, preparations should be made to maintain at least a 100-foot undisturbed buffer zone between the adjacent waterway and the borrow site.

This jurisdictional determination (JD) is based solely upon available office resources, including contact with the Natural Resources Conservation Service, and not upon direct observation of the subject property. We believe this determination to be a reasonable assessment of the presence of jurisdictional waters, including wetlands, on the site subject to Section 404 of the CWA. However, this is only a preliminary determination, and as such, is not a definitive description of on-site wetlands or U.S. Army Corps of Engineers jurisdiction over the area. For an understanding of Administrative Appeal options regarding this preliminary JD, please read the enclosed information sheet.

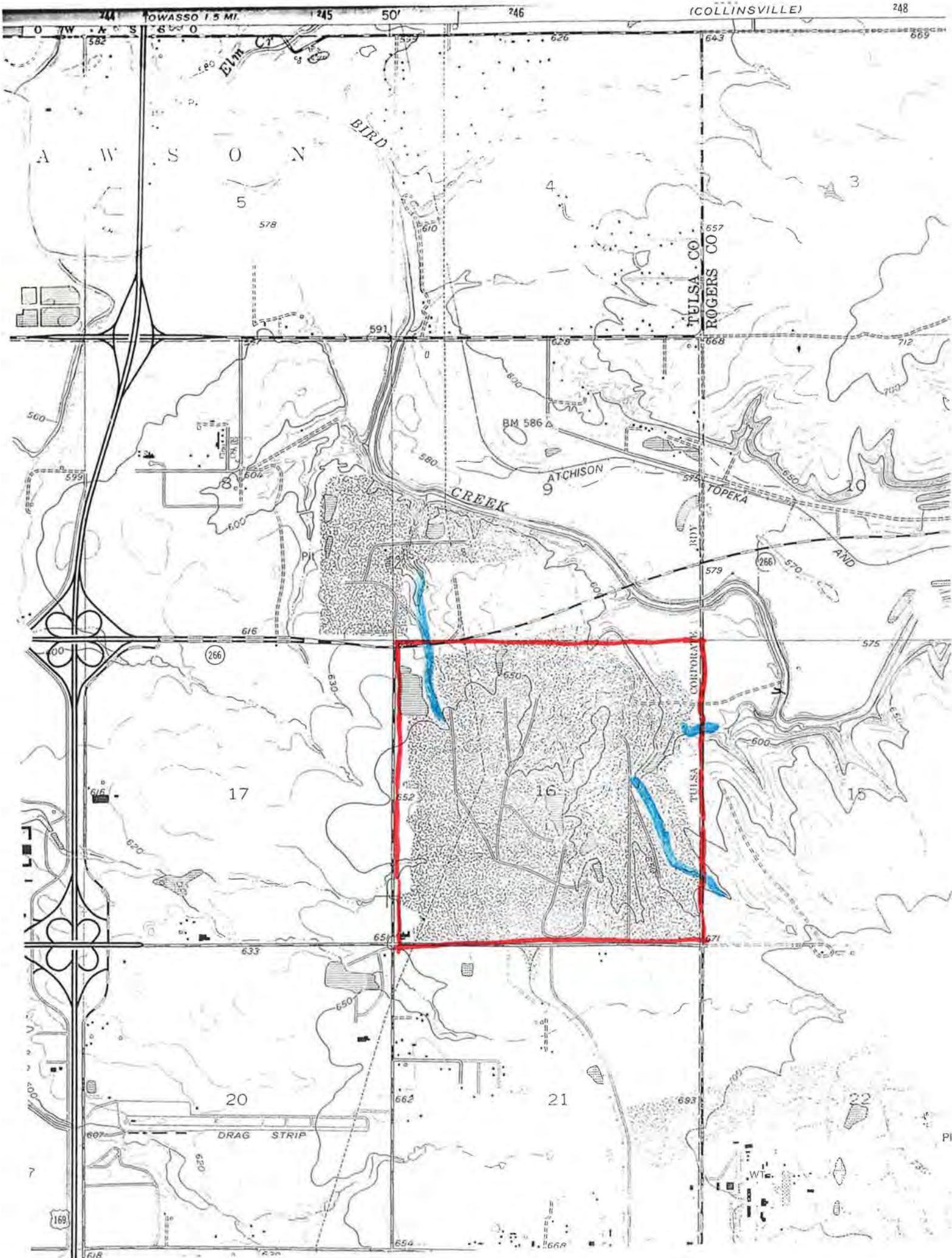


Your request has been assigned Identification No. 10942. Please refer to this number during future correspondence. If you have any questions, contact Ms. Helen J. Williams at 918-669-7009.

Sincerely,

  
David A. Manning  
Chief, Regulatory Branch

Enclosures







DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS, TULSA DISTRICT  
1645 SOUTH 101ST EAST AVENUE  
TULSA, OKLAHOMA 74128-4609

May 2, 2017

Regulatory Office

Mr. Deren M. Ertugrul  
A & M Engineering & Environmental Services, Inc.  
10010 East 16th Street  
Tulsa, OK 74128-4713

Dear Mr. Ertugrul:

This is in reference to your letter dated February 13, 2017, requesting a jurisdictional determination (JD) on property located in Section 16, Township 20 North, Range 14 East, in Tulsa County, Oklahoma. The area marked in red on the enclosed map denotes the limits of the property examined under this request. We have reviewed the submitted data relative to Section 404 of the Clean Water Act (CWA).

We have examined the property and concluded that the referenced property contains no jurisdictional wetlands or other waters of the United States subject to Section 404 of the CWA.

We believe this determination to be an accurate assessment of the presence of jurisdictional wetlands and other waters on the site which are subject to Section 404 of the CWA. This is a final determination of federal jurisdiction on the property pursuant to Section 404 of the CWA. This determination is valid for 5 years from the date of this letter unless new information warrants revision of the determination before the expiration date.

This determination has been conducted to identify the limits of the Corps CWA jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

This final determination constitutes an approved JD subject to the optional Corps Administrative Appeal Process. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed is a copy of the Notification of Administrative Appeal Options and Process (NAP) and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the Southwestern Division Office at the following address:




Mr. Elliott Carman  
Administrative Appeals Review Officer (CESWD-PD-O)  
U.S. Army Corps of Engineers  
1100 Commerce Street, Suite 831  
Dallas, TX 75242-1317  
Tel: 469-487-7061

In order for a RFA form to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit a RFA form, it must be received at the above address by July 1, 2017. It is not necessary to submit a RFA form to the Division Office if you do not object to the determination in this letter.

If you desire to complete a "Customer Service Survey" please visit the internet address [http://corpsmapu.usace.army.mil/cm\\_apex/f?p=regulatory\\_survey](http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey) at your convenience and submit your comments.

This case has been assigned Identification No. SWT-2017-00163. Please refer to this number during future correspondence. If you have any questions, please contact Mr. Rob Hoffmann at 918-669-7481.

Sincerely,

  
for: Andrew R. Commer  
Chief, Regulatory Office

Enclosures



**US Army Corps  
of Engineers®**  
Tulsa District



**SWT-2017-00163- C & D Landfill Expansion Project  
Approved Jurisdictional Determination**

**Mr. Rob Hoffmann  
Regulatory Specialist**



Review Area Overview



**Legend**

 Review Area

0 2,250 4,500  
Feet



Figure No. 1  
Date: May 2, 2017



## NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Mr. Deren Ertugrul		File Number: SWT-2017-163	Date: May 2, 2017
Attached is:			See Section below
<input type="checkbox"/>	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A	
<input type="checkbox"/>	PROFFERED PERMIT (Standard Permit or Letter of permission)	B	
<input type="checkbox"/>	PERMIT DENIAL	C	
<input checked="" type="checkbox"/>	APPROVED JURISDICTIONAL DETERMINATION	D	
<input type="checkbox"/>	PRELIMINARY JURISDICTIONAL DETERMINATION	E	

**SECTION I -** The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/appeals.aspx> or Corps regulations at 33 CFR Part 331.

**A: INITIAL PROFFERED PERMIT:** You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

**B: PROFFERED PERMIT:** You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**C: PERMIT DENIAL:** You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**D: APPROVED JURISDICTIONAL DETERMINATION:** You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**E: PRELIMINARY JURISDICTIONAL DETERMINATION:** You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.



**SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT**

**REASONS FOR APPEAL OR OBJECTIONS:** (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

**ADDITIONAL INFORMATION:** The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

**POINT OF CONTACT FOR QUESTIONS OR INFORMATION:**

If you have questions regarding this decision and/or the appeal process you may contact:

Mr. Rob Hoffmann  
1645 S. 101<sup>st</sup> East Avenue  
Tulsa, OK 74128  
918-669-7400

If you only have questions regarding the appeal process you may also contact:

Mr. Elliott Carman  
Administrative Appeals Review Officer (CESWD-PD-O)  
U.S. Army Corps of Engineers  
1100 Commerce Street, Suite 831  
Dallas, Texas 75242-1317  
469-487-7061

**RIGHT OF ENTRY:** Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

\_\_\_\_\_  
Signature of appellant or agent.

Date:

Telephone number:

## **APPENDIX D-6**

### Airport Correspondence



**A & M ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

10010 E. 16<sup>TH</sup> STREET  
TULSA, OKLAHOMA 74128-4713

ENGINEERING • ENVIRONMENTAL • CONSTRUCTION  
(918) 665-6575 • FAX (918) 665-6576  
EMAIL: aandm@aandmengineering.com

January 20, 2017

Registered Mail Return Receipt

Mr. Joseph G. Washington  
Manager, Safety and Standards Branch, ASW-620  
U.S. Department of Transportation  
Federal Aviation Administration  
10101 Hillwood Parkway  
Fort Worth, Texas 76177

**RE:    FAA File No. 21-001OK  
      Proposed Lateral Expansion  
      APAC East Quarry C&D Landfill  
      Tulsa County, Oklahoma**

Dear Mr. Washington:

The purpose of this letter is to inform the Federal Aviation Administration (FAA) that A&M Engineering and Environmental Services, Inc. (A&M Engineering) is currently in the process of preparing a landfill expansion permit application, on behalf of APAC-Central, Inc. (APAC), to expand the existing APAC East Quarry Construction and Demolition (C&D) Landfill located in Tulsa, Oklahoma. The existing landfill facility is located northeast of the City of Tulsa, east of 129<sup>th</sup> Street and south of State Highway 266. The proposed 55-acre lateral expansion area is located within an existing rock quarry adjacent to and south of the existing permit area in the Northwest Quarter (1/4) of Section 16, Township 20 North, Range 14 East of the Indian Base and Meridian. For your reference, a General Site Location Map, Topographic Site Map and FAA Airport Map are provided as Figures 1, 2 and 3 respectively.

Although the Oklahoma Department of Environmental Quality (DEQ) regulations for landfill location restrictions regarding airports do not apply to C&D landfills, this notice is being provided in consideration of the FAA Advisory Circular 150-5200-33B. As shown in the attached figures, the proposed landfill expansion area is located at a distance greater than 5,000 feet from the nearest runway end used by piston-powered aircraft and greater than 10,000 feet from the nearest runway end used by turbine-powered aircraft. However, the proposed expansion area is located within 5 statute miles of the nearest runway end of the Tulsa International Airport (TUL), Harvey Young Airport (1H6) and Gundy's Airport (O38). A separate notification letter has been sent to each of these airports.

We believe that the proposed expansion to the existing C&D landfill will not pose an increased wildlife hazard to aircraft utilizing these airports. Since its inception, APAC has strived to



Mr. Joseph G. Washington  
January 20, 2017  
Page 2 of 2

operate the landfill facility in a manner that meets or exceeds regulatory requirements and standard industry practice. In accordance with regulatory requirements, only wastes that classify as C&D wastes are accepted at the facility. Putrescible wastes are not accepted. APAC consistently maintains a manageable active working face that is compacted and covered with earthen material or a DEQ approved alternate cover material at least on a weekly basis. The application of such cover materials minimizes the exposure of waste materials that could potentially serve as a wildlife habitat. Furthermore, the present quarry area is largely devoid of vegetation that would provide habitat for wildlife. Historically, APAC personnel have not encountered any significant bird populations associated with the C&D waste disposal operations at the site.

If you have any questions, comments or concerns regarding the proposed expansion of the APAC East Quarry C&D Landfill, please do not hesitate to contact me by telephone at (918) 665-6575 or by email at [dertugrul@aandmengineering.com](mailto:dertugrul@aandmengineering.com). Thank you very much for your assistance with this matter.

Respectfully,  
**A&M Engineering and Environmental Services, Inc.**

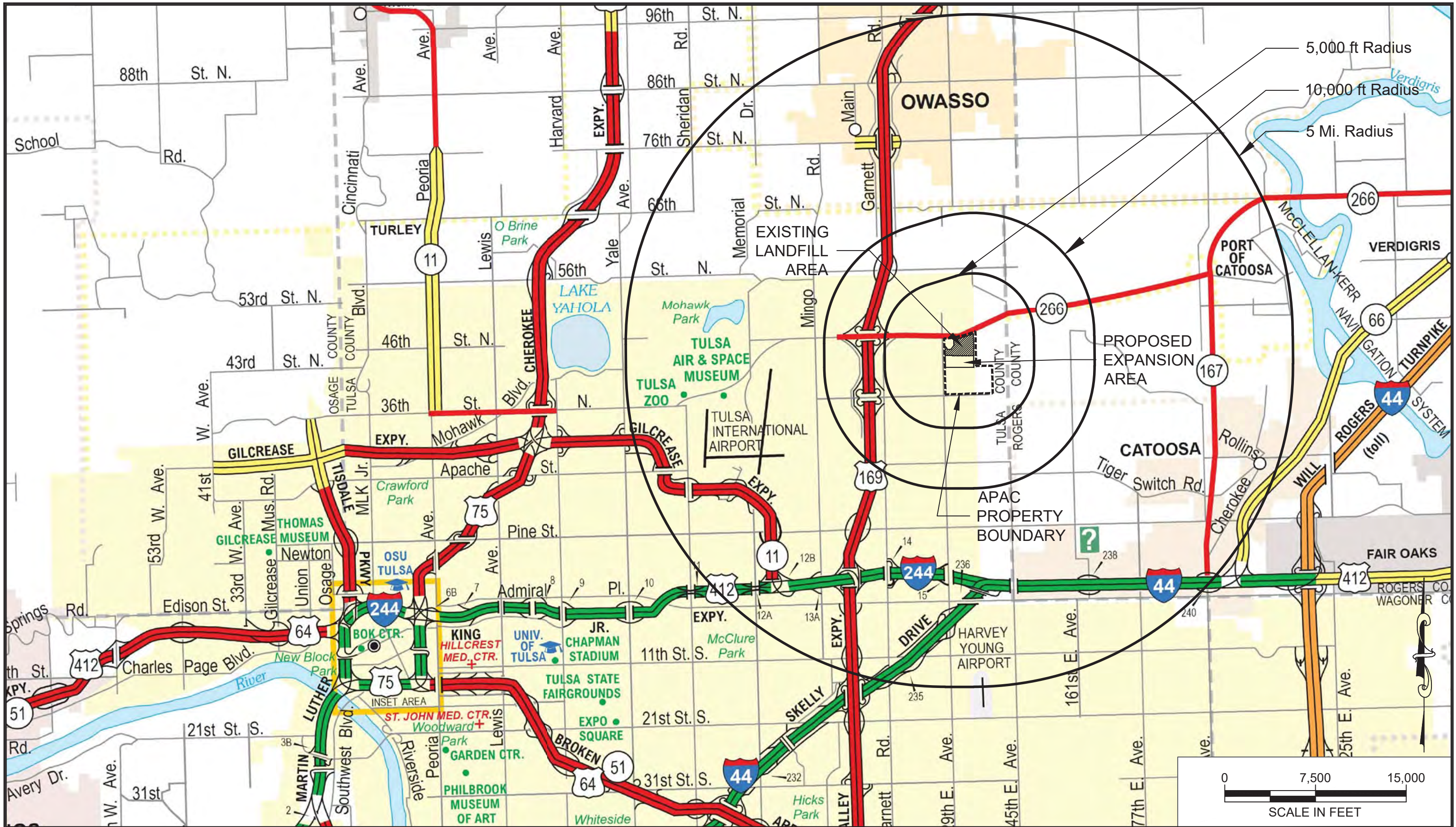
A handwritten signature in black ink, reading "Deren M Ertugrul". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

Deren M. Ertugrul, P.E.  
Project Manager

Attachment: Figures

cc: Mr. Kristopher McClanahan, APAC-Central, Inc.  
Mr. Biff Huckaby, APAC-Central, Inc.



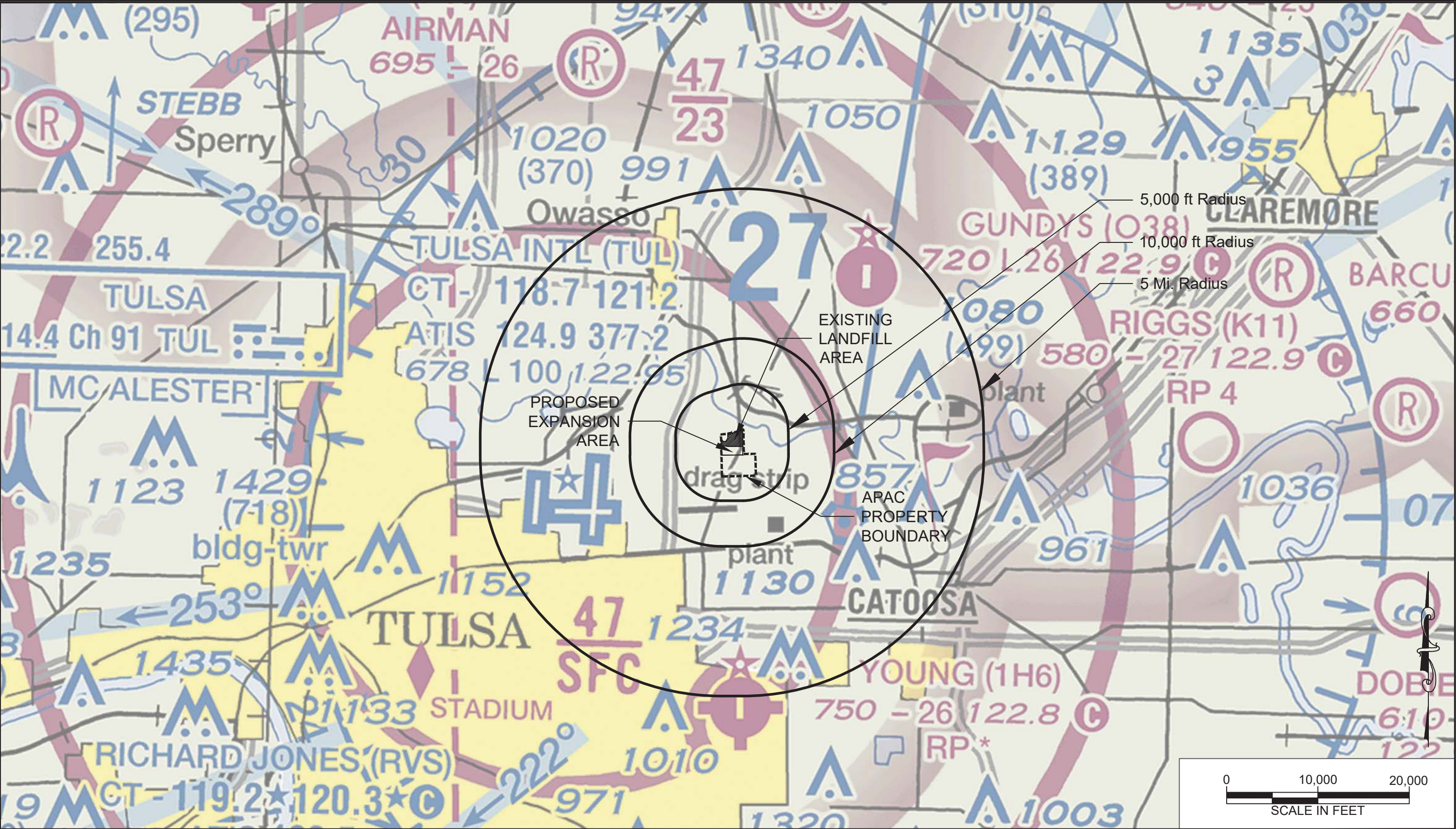


GENERAL NOTES		REVISIONS										<div><div><div>A</div><div>M</div></div><div>A &amp; M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.</div><div>ENGINEERING — ENVIRONMENTAL — CONSTRUCTION</div></div>				<div>GENERAL SITE LOCATION MAP</div> <div>APAC EAST QUARRY C&amp;D LANDFILL</div> <div>TULSA, OKLAHOMA</div>													
1) MAP FROM CITY OF TULSA WEBSITE.	NO.	DESCRIPTION	BY	CHECKED	DATE	NO.	DESCRIPTION	BY	CHECKED	DATE																			
												DRAWN: BAG		CHECKED BY: DME		MATERIALS BY:		ENGINEER:		APPROVED BY: DME		SCALE: NOTED		PROJECT NUMBER: 1800-043		DRAWING NUMBER: FIGURE 1		REV.:	
												DATE: 12/29/2016		DATE: 12/29/2016		DATE:		DATE:		DATE: 12/29/2016									









GENERAL NOTES

1) THIS MAP IS REPRODUCED FROM THE FAA KANSAS CITY SECTIONAL AERONAUTICAL CHART 97th EDITION DATED NOVEMBER 10, 2016

REVISIONS									
NO.	DESCRIPTION	BY	CHECKED	DATE	NO.	DESCRIPTION	BY	CHECKED	DATE

A & M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

ENGINEERING - ENVIRONMENTAL - CONSTRUCTION

DRAWN: BAG

CHECKED BY: DME

MATERIALS BY:

ENGINEER:

DATE: 12/29/2016

DATE: 12/29/2016

DATE:

DATE:

FAA AIRPORT VICINITY MAP				
APAC EAST QUARRY C&D LANDFILL TULSA, OKLAHOMA				
APPROVED BY: DME	SCALE: NOTED	PROJECT NUMBER: 1800-043	DRAWING NUMBER: FIGURE 3	REV: 1
DATE: 12/29/2016				





U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Federal Aviation Administration  
Airports Division, Southwest Region Safety and  
Standards Branch

10101 Hillwood Parkway  
Fort Worth, Texas 76177

February 7, 2017

Deren M. Ertugrul, P.E.  
Project Manager  
A&M Engineering & Environmental Services Inc.  
10010 East 16<sup>th</sup> Street  
Tulsa, OK 74128-4173

**Subject: APAC East Quarry C&D Landfill  
Proposed Lateral Expansion (Re: FAA File 21-001-OK)  
Tulsa, OK  
FAA File No. 21-001-OK**

Dear Mr. Ertugrul:

This is in response to your letter of January 20, 2017, advising us of a lateral expansion permit application being prepared by A&M Engineering on behalf of APAC-Central Inc., Tulsa, Oklahoma. Thank you for keeping us informed. Please continue to monitor the wildlife in and around the APAC East Quarry C&D Landfill area and report any changes in wildlife populations to the Tulsa Airport Administrative Offices.

We have no objection to the expansion plans described as we understand it is your intent to comply with the September 28, 2001 original approval letter requirements of covering the working face with at least six inches of earthen cover on a weekly basis and there is no change in landfill type. Our position of no objection is based on our guidance for hazardous wildlife attractants on or near airports FAA Advisory Circular 150/5200-33B.

This site has been assigned our file No. 21-001-OK. Please refer to this number in any future correspondence regarding this site. Thank you for coordinating with us. If there are any questions, you can contact me at 817-222-5671 or [gary.loftus@faa.gov](mailto:gary.loftus@faa.gov).

Sincerely,

Gary J. Loftus  
Airports Compliance Program Manager  
Airport Certification Safety Inspector  
FAA Southwest Region  
Southwest Region Airports Division

cc: Oklahoma Aeronautics Commission  
120 N. Robinson  
Suite 1244W  
Oklahoma City, OK 73102

Department  
of Transportation

**Aviation  
Administration**

Standards Br, ASW-620  
Wood Parkway  
X 76177

Business  
Private Use, \$300

TX TEXAS  
DALLAS 750  
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PM 13 L



U.S. POSTAGE >> PITNEY BOWES



ZIP 76137 \$ 000.46<sup>0</sup>  
02 1W

0001403267 FEB 09 2017

MR DEREN M ERTUGRUL  
PROJECT MANAGER  
A&M ENGINEERING AND ENVIRONMENTAL  
...SERVICES INC  
10010 EAST 16TH STREET  
TULSA OK 74128-4173

74128-46110







**A & M ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

10010 E. 16<sup>TH</sup> STREET  
TULSA, OKLAHOMA 74128-4713

ENGINEERING • ENVIRONMENTAL • CONSTRUCTION  
(918) 665-6575 • FAX (918) 665-6576  
EMAIL: aandm@aandmengineering.com

January 20, 2017

Registered Mail Return Receipt

Ms. Alexis Higgins, A.A.E.  
Interim Director of Airports  
Tulsa International Airport  
P.O. Box 581838  
Tulsa, Oklahoma 74158

**RE: Proposed Lateral Expansion  
APAC East Quarry C&D Landfill  
Tulsa County, Oklahoma**

Dear Ms. Higgins:

The purpose of this letter is to inform the Tulsa International Airport (TIA) that A&M Engineering and Environmental Services, Inc. (A&M Engineering) is currently in the process of preparing a landfill expansion permit application, on behalf of APAC-Central, Inc. (APAC), to expand the existing APAC East Quarry Construction and Demolition (C&D) Landfill located in Tulsa, Oklahoma. The existing landfill facility is located northeast of the City of Tulsa, east of 129<sup>th</sup> Street and south of State Highway 266. The proposed 55-acre lateral expansion area is located within an existing rock quarry adjacent to and south of the existing permit area in the Northwest Quarter (1/4) of Section 16, Township 20 North, Range 14 East of the Indian Base and Meridian. For your reference, a General Site Location Map, Topographic Site Map and FAA Airport Map are provided as Figures 1, 2 and 3 respectively.

Although the Oklahoma Department of Environmental Quality (DEQ) regulations for landfill location restrictions regarding airports do not apply to C&D landfills, this notice is being provided in consideration of the Federal Aviation Administration (FAA) Advisory Circular 150-5200-33B. As shown in the attached figures, the proposed landfill expansion area is located at a distance greater than 10,000 feet but within 5 statute miles from the nearest runway end of TIA. A separate notification letter has been sent to the FAA.

We believe that the proposed expansion to the existing C&D landfill will not pose an increased wildlife hazard to aircraft utilizing TIA. Since its inception, APAC has strived to operate the landfill facility in a manner that meets or exceeds regulatory requirements and standard industry practice. In accordance with regulatory requirements, only wastes that classify as C&D wastes are accepted at the facility. Putrescible wastes are not accepted. APAC consistently maintains a manageable active working face that is compacted and covered with earthen material or a DEQ approved alternate cover material at least on a weekly basis. The application of such cover

Ms. Alexis Higgins, A.A.E.  
January 20, 2017  
Page 2 of 2

materials minimizes the exposure of waste materials that could potentially serve as a wildlife habitat. Furthermore, the present quarry area is largely devoid of vegetation that would provide habitat for wildlife. Historically, APAC personnel have not encountered any significant bird populations associated with the C&D waste disposal operations at the site.

If you have any questions, comments or concerns regarding the proposed expansion of the APAC East Quarry C&D Landfill, please do not hesitate to contact me by telephone at (918) 665-6575 or by email at [dertugrul@aandmengineering.com](mailto:dertugrul@aandmengineering.com). Thank you very much for your assistance with this matter.

Respectfully,  
**A&M Engineering and Environmental Services, Inc.**

A handwritten signature in black ink, reading "Deren M Ertugrul". The signature is written in a cursive, flowing style.

Deren M. Ertugrul, P.E.  
Project Manager

Attachment: Figures

cc: Mr. Kristopher McClanahan, APAC-Central, Inc.  
Mr. Biff Huckaby, APAC-Central, Inc.















**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

ms. Alexis Higgins, A.A.E.  
 . wife  
 national Aspad  
 P.O. Box 581838  
 Tulsa, OK 74158



9590 9402 2448 6249 6887 93

2. Article Number (Transfer from carrier label)

7003 1680 0006 9558 5533

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

X *[Signature]*

☐ Agent

☐ Addressee

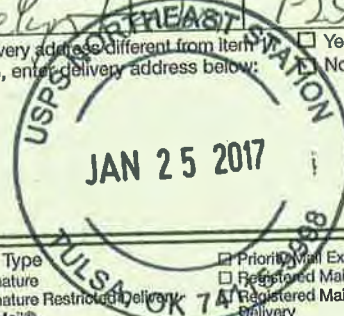
B. Received by (Printed Name)

*Ethel...*

C. Date of Delivery

*1-25-17*

D. Is delivery address different from item 1? ☐ Yes  
 If YES, enter delivery address below: ☐ No



3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☒ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery

- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☒ Registered Mail Restricted Delivery
- ☒ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

☐ Restricted Delivery (over \$500)



**A & M ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

10010 E. 16<sup>TH</sup> STREET  
TULSA, OKLAHOMA 74128-4713

ENGINEERING • ENVIRONMENTAL • CONSTRUCTION  
(918) 665-6575 • FAX (918) 665-6576  
EMAIL: aandm@aandmengineering.com

January 20, 2017

Registered Mail Return Receipt

Mr. David Guzman  
Manager  
Harvey Young Airport  
1419 South 135<sup>th</sup> East Avenue  
Tulsa, Oklahoma 74108

**RE: Proposed Lateral Expansion  
APAC East Quarry C&D Landfill  
Tulsa County, Oklahoma**

Dear Mr. Guzman:

The purpose of this letter is to inform the Harvey Young Airport that A&M Engineering and Environmental Services, Inc. (A&M Engineering) is currently in the process of preparing a landfill expansion permit application, on behalf of APAC-Central, Inc. (APAC), to expand the existing APAC East Quarry Construction and Demolition (C&D) Landfill located in Tulsa, Oklahoma. The existing landfill facility is located northeast of the City of Tulsa, east of 129<sup>th</sup> Street and south of State Highway 266. The proposed 55-acre lateral expansion area is located within an existing rock quarry adjacent to and south of the existing permit area in the Northwest Quarter (1/4) of Section 16, Township 20 North, Range 14 East of the Indian Base and Meridian. For your reference, a General Site Location Map, Topographic Site Map and FAA Airport Map are provided as Figures 1, 2 and 3 respectively.

Although the Oklahoma Department of Environmental Quality (DEQ) regulations for landfill location restrictions regarding airports do not apply to C&D landfills, this notice is being provided in consideration of the Federal Aviation Administration (FAA) Advisory Circular 150-5200-33B. As shown in the attached figures, the proposed landfill expansion area is located at a distance greater than 10,000 feet but within 5 statute miles from the nearest runway end of Harvey Young Airport. A separate notification letter has been sent to the FAA.

We believe that the proposed expansion to the existing C&D landfill will not pose an increased wildlife hazard to aircraft utilizing Harvey Young Airport. Since its inception, APAC has strived to operate the landfill facility in a manner that meets or exceeds regulatory requirements and standard industry practice. In accordance with regulatory requirements, only wastes that classify as C&D wastes are accepted at the facility. Putrescible wastes are not accepted. APAC consistently maintains a manageable active working face that is compacted and covered with earthen material or a DEQ approved alternate cover material at least on a weekly basis. The



Mr. David Guzman  
January 20, 2017  
Page 2 of 2

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If you have any questions, comments or concerns regarding the proposed expansion of the APAC East Quarry C&D Landfill, please do not hesitate to contact me by telephone at (918) 665-6575 or by email at [dertugrul@aandmengineering.com](mailto:dertugrul@aandmengineering.com). Thank you very much for your assistance with this matter.

Respectfully,  
**A&M Engineering and Environmental Services, Inc.**

A handwritten signature in black ink, reading "Deren M. Ertugrul". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

Deren M. Ertugrul, P.E.  
Project Manager

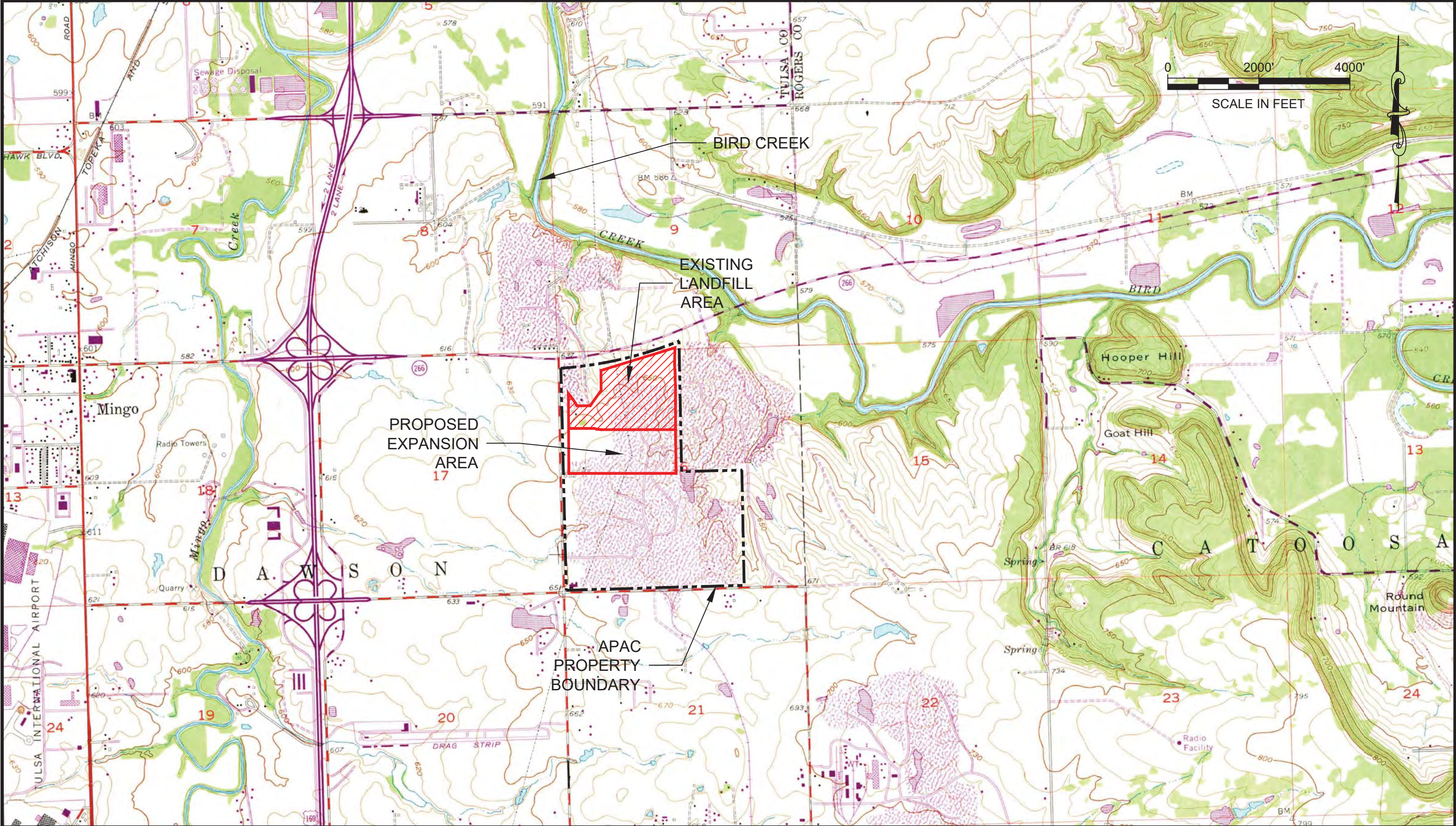
Attachment: Figures

cc: Mr. Kristopher McClanahan, APAC-Central, Inc.  
Mr. Biff Huckaby, APAC-Central, Inc.









GENERAL NOTES  
1) BASE MAP SOURCE: USGS 7.5 MINUTE MINGO, OKLAHOMA QUADRANGLE, 1955, PHOTO REVISED 1973.

REVISIONS							
NO.	DESCRIPTION	BY	CHECKED	DATE	NO.	DESCRIPTION	BY

A

A & M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

ENGINEERING - ENVIRONMENTAL - CONSTRUCTION

DRAWN: PAL

CHECKED BY: DME

MATERIALS BY:

ENGINEER:

DATE: 11/23/2016

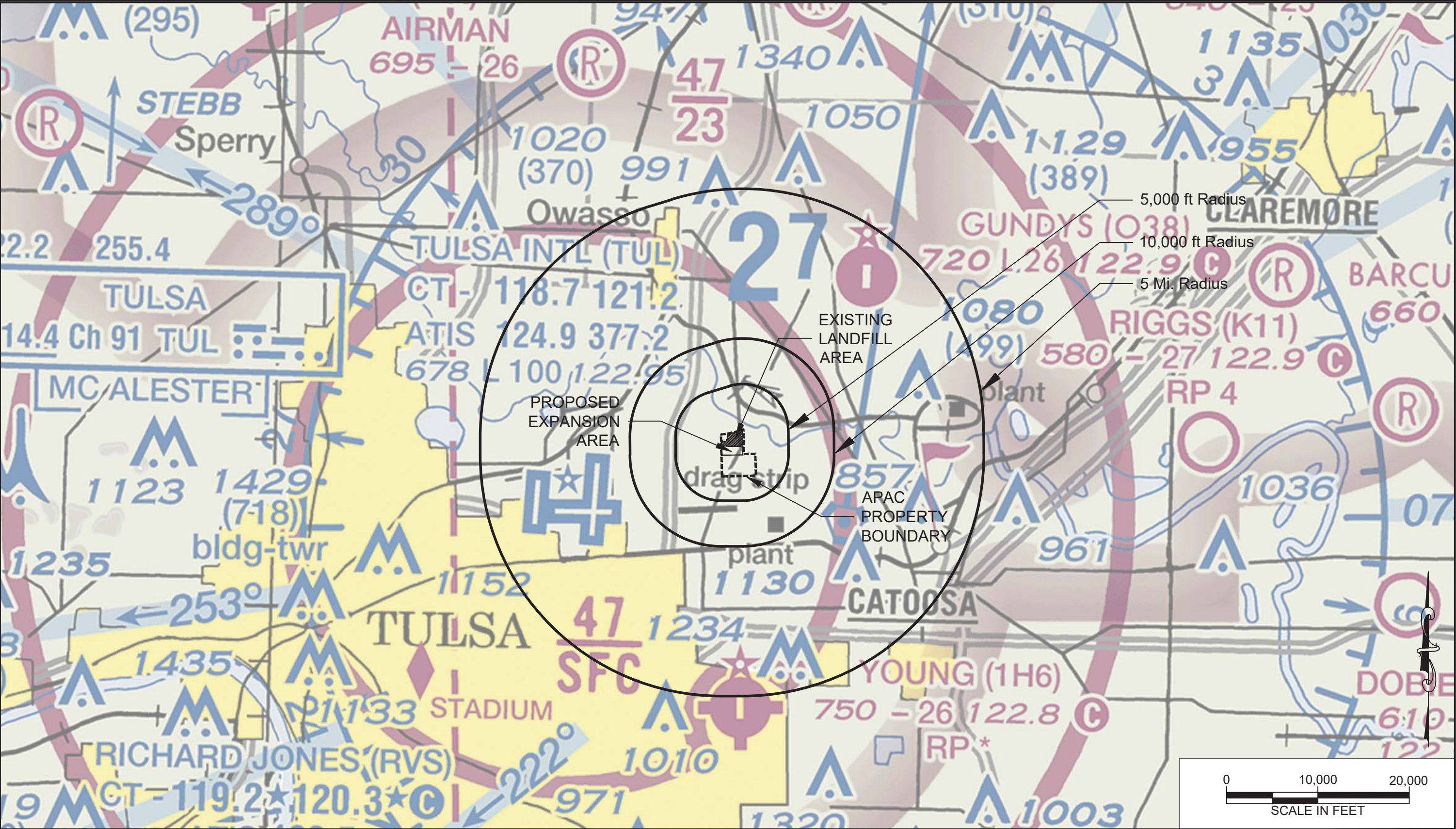
DATE: 11/23/2016

DATE:

DATE:

TOPOGRAPHIC SITE MAP PROPOSED LANDFILL EXPANSION APAC EAST QUARRY C&D LANDFILL TULSA, OKLAHOMA							
APPROVED BY: DME	SCALE: NOTED	PROJECT NUMBER: 1800-043	DRAWING NUMBER: FIGURE 2	REV:			
DATE: 11/23/2016							





GENERAL NOTES

1) THIS MAP IS REPRODUCED FROM THE FAA KANSAS CITY SECTIONAL AERONAUTICAL CHART 97th EDITION DATED NOVEMBER 10, 2016

REVISIONS									
NO.	DESCRIPTION	BY	CHECKED	DATE	NO.	DESCRIPTION	BY	CHECKED	DATE

A & M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

ENGINEERING — ENVIRONMENTAL — CONSTRUCTION

DRAWN: BAG

CHECKED BY: DME

MATERIALS BY:

ENGINEER:

DATE: 12/29/2016

DATE: 12/29/2016

DATE:

DATE:

FAA AIRPORT VICINITY MAP				
APAC EAST QUARRY C&D LANDFILL TULSA, OKLAHOMA				
APPROVED BY: DME	SCALE: NOTED	PROJECT NUMBER: 1800-043	DRAWING NUMBER: FIGURE 3	REV: 1
DATE: 12/29/2016				



## SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. David Guyman  
Harvey Young Aupal  
1419 S. 135th Ave  
Tulsa, OK 74108



9590 9402 2448 6249 6887 79

2. Article Number (Transfer from service label)

7003 1680 0006 9558 5526

## COMPLETE THIS SECTION ON DELIVERY

A. Signature

X *[Signature]*

- ☐ Agent  
☐ Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes  
If YES, enter delivery address below: ☐ No



3. Service Type

- |  |   |
|--|---|
| <input type="checkbox"/> Adult Signature                         | <input type="checkbox"/> Priority Mail Express®                     |
| <input type="checkbox"/> Adult Signature Restricted Delivery     | <input type="checkbox"/> Registered Mail™                           |
| <input checked="" type="checkbox"/> Certified Mail®              | <input type="checkbox"/> Registered Mail Restricted Delivery        |
| <input type="checkbox"/> Certified Mail Restricted Delivery      | <input checked="" type="checkbox"/> Return Receipt for Merchandise  |
| <input type="checkbox"/> Collect on Delivery                     | <input type="checkbox"/> Signature Confirmation™                    |
| <input type="checkbox"/> Collect on Delivery Restricted Delivery | <input type="checkbox"/> Signature Confirmation Restricted Delivery |
| <input type="checkbox"/> all Restricted Delivery                 |   |



**A & M ENGINEERING & ENVIRONMENTAL SERVICES, INC.**

10010 E. 16<sup>TH</sup> STREET  
TULSA, OKLAHOMA 74128-4713

ENGINEERING • ENVIRONMENTAL • CONSTRUCTION  
(918) 665-6575 • FAX (918) 665-6576  
EMAIL: aandm@aandmengineering.com

January 20, 2017

Registered Mail Return Receipt

Mr. Roger Wieden  
Manager  
Gundy's Airport  
P.O. Box 693  
Owasso, Oklahoma 74055

**RE: Proposed Lateral Expansion  
APAC East Quarry C&D Landfill  
Tulsa County, Oklahoma**

Dear Mr. Wieden:

The purpose of this letter is to inform Gundy's Airport that A&M Engineering and Environmental Services, Inc. (A&M Engineering) is currently in the process of preparing a landfill expansion permit application, on behalf of APAC-Central, Inc. (APAC), to expand the existing APAC East Quarry Construction and Demolition (C&D) Landfill located in Tulsa, Oklahoma. The existing landfill facility is located northeast of the City of Tulsa, east of 129<sup>th</sup> Street and south of State Highway 266. The proposed 55-acre lateral expansion area is located within an existing rock quarry adjacent to and south of the existing permit area in the Northwest Quarter (1/4) of Section 16, Township 20 North, Range 14 East of the Indian Base and Meridian. For your reference, a General Site Location Map, Topographic Site Map and FAA Airport Map are provided as Figures 1, 2 and 3 respectively.

Although the Oklahoma Department of Environmental Quality (DEQ) regulations for landfill location restrictions regarding airports do not apply to C&D landfills, this notice is being provided in consideration of the Federal Aviation Administration (FAA) Advisory Circular 150-5200-33B. As shown in the attached figures, the proposed landfill expansion area is located at a distance greater than 10,000 feet but within 5 statute miles from the nearest runway end of Gundy's Airport. A separate notification letter has been sent to the FAA.

We believe that the proposed expansion to the existing C&D landfill will not pose an increased wildlife hazard to aircraft utilizing Gundy's Airport. Since its inception, APAC has strived to operate the landfill facility in a manner that meets or exceeds regulatory requirements and standard industry practice. In accordance with regulatory requirements, only wastes that classify as C&D wastes are accepted at the facility. Putrescible wastes are not accepted. APAC consistently maintains a manageable active working face that is compacted and covered with earthen material or a DEQ approved alternate cover material at least on a weekly basis. The



Mr. Roger Wieden  
January 20, 2017  
Page 2 of 2

application of such cover materials minimizes the exposure of waste materials that could potentially serve as a wildlife habitat. Furthermore, the present quarry area is largely devoid of vegetation that would provide habitat for wildlife. Historically, APAC personnel have not encountered any significant bird populations associated with the C&D waste disposal operations at the site.

If you have any questions, comments or concerns regarding the proposed expansion of the APAC East Quarry C&D Landfill, please do not hesitate to contact me by telephone at (918) 665-6575 or by email at [dertugrul@aandmengineering.com](mailto:dertugrul@aandmengineering.com). Thank you very much for your assistance with this matter.

Respectfully,  
**A&M Engineering and Environmental Services, Inc.**

A handwritten signature in black ink, reading "Deren M Ertugrul". The signature is fluid and cursive, with the first name "Deren" and last name "Ertugrul" clearly legible.

Deren M. Ertugrul, P.E.  
Project Manager

Attachment: Figures

cc: Mr. Kristopher McClanahan, APAC-Central, Inc.  
Mr. Biff Huckaby, APAC-Central, Inc.

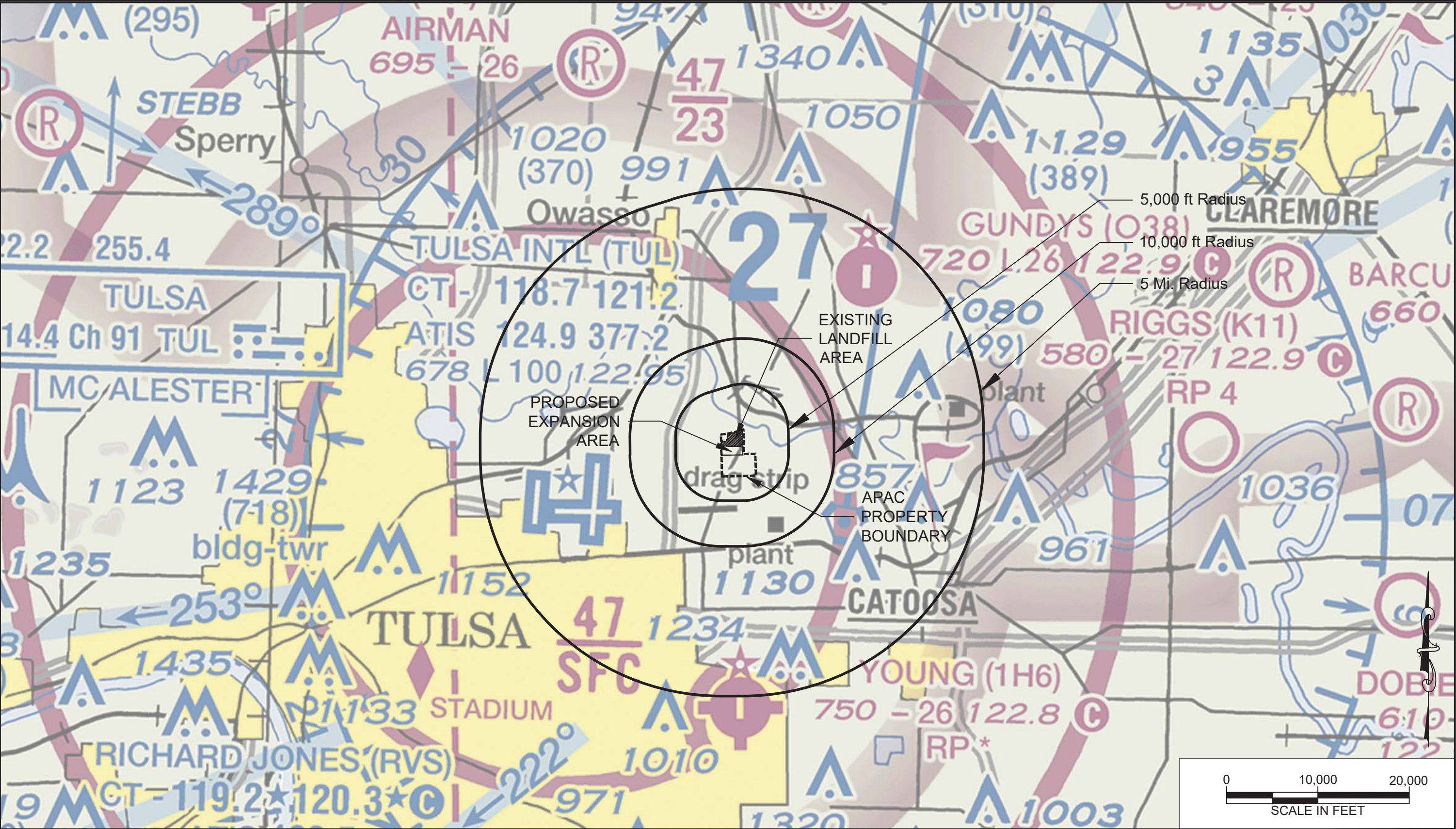













GENERAL NOTES

1) THIS MAP IS REPRODUCED FROM THE FAA KANSAS CITY SECTIONAL AERONAUTICAL CHART 97th EDITION DATED NOVEMBER 10, 2016

REVISIONS									
NO.	DESCRIPTION	BY	CHECKED	DATE	NO.	DESCRIPTION	BY	CHECKED	DATE



A & M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.  
ENGINEERING — ENVIRONMENTAL — CONSTRUCTION

DRAWN: BAG	CHECKED BY: DME	MATERIALS BY:	ENGINEER:
DATE: 12/29/2016	DATE: 12/29/2016	DATE:	DATE:

FAA AIRPORT VICINITY MAP  
APAC EAST QUARRY C&D LANDFILL  
TULSA, OKLAHOMA

APPROVED BY: DME	SCALE: NOTED	PROJECT NUMBER: 1800-043	DRAWING NUMBER: FIGURE 3	REV.:
DATE: 12/29/2016				



## SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

## 1. Article Addressed to:

Mr. Roger Wieden  
Gandy's Airport  
P.O. Box 693  
Aurora, IL 74055



9590 9402 2448 6249 6887 86

## 2. Article Number (Transfer from service label)

7003 1010 0002 8746 0924

## COMPLETE THIS SECTION ON DELIVERY

## A. Signature

X

- ☐ Agent  
☐ Addressee

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Roger S Wieden

## C. Date of Delivery

- D. Is delivery address different from item 1? ☐ Yes  
If YES, enter delivery address below: ☐ No



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