



## Appendices

---

### Appendix 3 – Corral Fly - Recycling Containment Geotechnical/Boring Report

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/5/17

COORDINATES: 32.156292  
-103.950709  
SURFACE ELEVATION: --'  
BOREHOLE DEPTH: 42'0"  
DEPTH TO WATER: N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                 |              |               |               |                |                   |                    |                       | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|-----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|-----------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3 /4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI) |                        |          |                      |

|   |                                                                                     |                                                                                     |         |                             |    |     |     |    |    |    |      |     |     |     |        |  |  |  |        |
|---|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|-----------------------------|----|-----|-----|----|----|----|------|-----|-----|-----|--------|--|--|--|--------|
| 0 |    |    | 8/6"    | Brown Silty Sand            | -- | 6.5 | 100 | 90 | 90 | 88 | 19.1 | --  | --  | --  | 2,730  |  |  |  |        |
|   |   |   | 50/5"   | Tan Caliche mixed with Sand | -- | 8.7 | 70  | 54 | 46 | 35 | 11.2 | --  | --  | --  | >8,000 |  |  |  |        |
|   |                                                                                     |                                                                                     |         |                             |    |     |     |    |    |    |      |     |     |     |        |  |  |  |        |
|   |  |  | 50/5"   | Tan Silty Sand (Caliche)    | SM | 4.7 | 100 | 86 | 76 | 60 | 26.1 | SNP | SNP | SNP | >8,000 |  |  |  |        |
|   |                                                                                     |                                                                                     |         |                             |    |     |     |    |    |    |      |     |     |     |        |  |  |  |        |
|   |                                                                                     |                                                                                     | 100/11" |                             |    | 3.7 |     |    |    |    |      |     |     |     |        |  |  |  | >8,000 |
|   |                                                                                     |                                                                                     |         |                             |    |     |     |    |    |    |      |     |     |     |        |  |  |  |        |
|   |                                                                                     |                                                                                     | 86/9"   |                             |    | 4.9 |     |    |    |    |      |     |     |     |        |  |  |  | >8,000 |
|   |                                                                                     |                                                                                     |         |                             |    |     |     |    |    |    |      |     |     |     |        |  |  |  |        |
|   |                                                                                     |                                                                                     | 50/5"   |                             |    | 4.5 |     |    |    |    |      |     |     |     |        |  |  |  | >8,000 |
|   |                                                                                     |                                                                                     |         |                             |    |     |     |    |    |    |      |     |     |     |        |  |  |  |        |



### SPLIT SPOON SAMPLE



## AIR ROTARY



## WATER



## SHELBY SAMPLE



**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/5/17

**COORDINATES:** 32.156292  
-103.950709  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 42'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |       |    |                        |    |     |  |  |  |  |  |  |  |  |        |  |
|----|--|-------|----|------------------------|----|-----|--|--|--|--|--|--|--|--|--------|--|
| 10 |  | 20/6" | 51 | Reddish Tan Silty Sand | SM | 4.4 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |  |       |    |                        |    | 4.8 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |  |       |    |                        |    | 4.8 |  |  |  |  |  |  |  |  | >8,000 |  |
| 15 |  | 40    | 59 | Reddish Tan Silty Sand |    | 4.6 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |  |       |    |                        |    | 4.6 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |  |       |    |                        |    |     |  |  |  |  |  |  |  |  |        |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/5/17

**COORDINATES:** 32.156292  
-103.950709  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 42'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |  |       |                       |    |     |    |    |    |      |     |     |     |  |        |  |
|----|--|--|-------|-----------------------|----|-----|----|----|----|------|-----|-----|-----|--|--------|--|
| 20 |  |  |       |                       | SM | 100 | 96 | 94 | 90 | 44.2 | SNP | SNP | SNP |  |        |  |
|    |  |  | 42    |                       |    | 5.4 |    |    |    |      |     |     |     |  | >8,000 |  |
|    |  |  | 63    |                       |    | 5.4 |    |    |    |      |     |     |     |  | >8,000 |  |
| 25 |  |  |       | Reddish Tan Lean Clay |    | 7.1 |    |    |    |      |     |     |     |  | >8,000 |  |
|    |  |  | 78    |                       |    |     |    |    |    |      |     |     |     |  | >8,000 |  |
|    |  |  | 92/8" |                       |    |     |    |    |    |      |     |     |     |  |        |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER

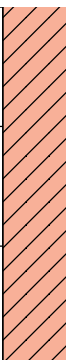


SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/5/17

**COORDINATES:** 32.156292  
 -103.950709  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 42'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                     |  |        |                        |    |      |    |    |    |      |    |    |   |        |        |  |
|----|-------------------------------------------------------------------------------------|--|--------|------------------------|----|------|----|----|----|------|----|----|---|--------|--------|--|
| 30 |   |  | 82     |                        | CL | 100  | 99 | 97 | 94 | 83.9 | 30 | 21 | 9 | >8,000 |        |  |
|    |                                                                                     |  | 50/5"  |                        |    | 13.2 |    |    |    |      |    |    |   |        |        |  |
|    |                                                                                     |  |        |                        |    | 13.2 |    |    |    |      |    |    |   |        |        |  |
| 35 |  |  | 62/11" | Reddish White Fat Clay |    | 22.3 |    |    |    |      |    |    |   |        | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



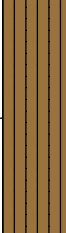
SHELBY SAMPLE

**BORING NO.: BH-1**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/5/17

**COORDINATES:** 32.156292  
-103.950709  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 42'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                     |                                                                                     |    |                         |    |      |     |     |    |    |      |    |    |    |        |  |
|----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|-------------------------|----|------|-----|-----|----|----|------|----|----|----|--------|--|
| 40 |    |    | 36 | Reddish Brown Lean Silt | CH |      | 100 | 100 | 99 | 93 | 87.3 | 60 | 24 | 36 |        |  |
|    |                                                                                     |                                                                                     |    |                         |    | 11.3 |     |     |    |    |      |    |    |    | >8,000 |  |
|    |  |  | 51 |                         | ML | 11.3 | 95  | 91  | 85 | 78 | 68.8 | 28 | 23 | 5  | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER

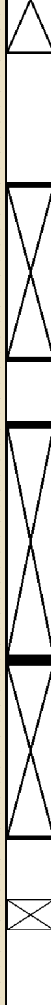


SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/5/17

**COORDINATES:** 32.154826  
 -103.950298  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|   |                                                                                    |                                                                                    |       |                          |    |     |     |    |    |    |      |     |     |     |        |  |
|---|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------|--------------------------|----|-----|-----|----|----|----|------|-----|-----|-----|--------|--|
| 0 |   |   | 10/6" | Brown Silty Sand (2")    | -- | 3.6 | 100 | 90 | 90 | 88 | 19.1 | --  | --  | --  | 10/6"  |  |
|   |                                                                                    |                                                                                    | 50/5" | Tan Silty Sand (Caliche) |    | 7.9 |     |    |    |    |      |     |     |     | >8,000 |  |
| 5 |  |  | 46    |                          | SM | 3.0 |     |    |    |    |      |     |     |     | >8,000 |  |
|   |                                                                                    |                                                                                    | 50/6" |                          |    | 3.0 |     |    |    |    |      |     |     |     | >8,000 |  |
|   |                                                                                    |                                                                                    | 50    |                          |    | 2.9 |     |    |    |    |      |     |     |     | >8,000 |  |
|   |                                                                                    |                                                                                    | 53    |                          |    | 2.9 | 100 | 86 | 76 | 60 | 26.1 | SNP | SNP | SNP | >8,000 |  |
|   |                                                                                    |                                                                                    | 33    |                          |    | 2.8 |     |    |    |    |      |     |     |     | 6,480  |  |
|   |                                                                                    |                                                                                    | 50/6" |                          |    | 2.8 |     |    |    |    |      |     |     |     | >8,000 |  |
|   |                                                                                    |                                                                                    | 38/3" |                          |    |     |     |    |    |    |      |     |     |     | >8,000 |  |
|   |                                                                                    |                                                                                    |       |                          |    |     |     |    |    |    |      |     |     |     |        |  |
|   |                                                                                    |                                                                                    |       |                          |    |     |     |    |    |    |      |     |     |     |        |  |
|   |                                                                                    |                                                                                    |       |                          |    |     |     |    |    |    |      |     |     |     |        |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**BORING NO.: BH-2**

|                    |                          |
|--------------------|--------------------------|
| COORDINATES:       | 32.154826<br>-103.950298 |
| SURFACE ELEVATION: | --'                      |
| BOREHOLE DEPTH:    | 41'0"                    |
| DEPTH TO WATER:    | N/A                      |

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) |                        |          |                      |

[illegible]

## SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/5/17

**COORDINATES:** 32.154826  
-103.950298  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |  |       |                        |  |     |  |  |  |  |  |  |  |  |        |  |
|----|--|--|-------|------------------------|--|-----|--|--|--|--|--|--|--|--|--------|--|
| 20 |  |  | 38    |                        |  | 2.8 |  |  |  |  |  |  |  |  | 7,580  |  |
|    |  |  | 30    |                        |  | 2.8 |  |  |  |  |  |  |  |  | 5,820  |  |
| 25 |  |  | 60/8" | Reddish Tan Silty Sand |  | 6.2 |  |  |  |  |  |  |  |  | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**BORING NO.: BH-2**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/5/17

**COORDINATES:** 32.154826  
-103.950298  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |   |       |  |    |      |     |    |    |    |      |     |     |     |        |  |
|----|--|---|-------|--|----|------|-----|----|----|----|------|-----|-----|-----|--------|--|
| 30 |  | X | 70/8" |  |    | 12.0 |     |    |    |    |      |     |     |     | >8,000 |  |
| 35 |  | X | 79    |  | SM | 8.8  | 100 | 96 | 94 | 90 | 44.2 | SNP | SNP | SNP | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-2**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/5/17

**COORDINATES:** 32.154826  
-103.950298  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |  |    |  |  |      |  |  |  |  |  |  |  |  |        |  |
|----|--|--|----|--|--|------|--|--|--|--|--|--|--|--|--------|--|
| 40 |  |  | 77 |  |  | 14.1 |  |  |  |  |  |  |  |  | >8,000 |  |
|----|--|--|----|--|--|------|--|--|--|--|--|--|--|--|--------|--|



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**BORING NO.: BH-3**

|                    |                          |
|--------------------|--------------------------|
| COORDINATES:       | 32.153068<br>-103.947830 |
| SURFACE ELEVATION: | --'                      |
| BOREHOLE DEPTH:    | 0'0"                     |
| DEPTH TO WATER:    | N/A                      |

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) |                        |          |                      |

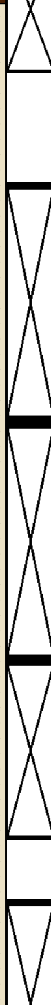
[illegible]

## SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/5/17

**COORDINATES:** 32.155606  
 -103.949216  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|   |                                                                                    |                                                                                    |       |                          |    |     |     |    |    |    |      |     |     |     |  |  |
|---|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------|--------------------------|----|-----|-----|----|----|----|------|-----|-----|-----|--|--|
| 0 |   |   | 3/6"  | Brown Silty Sand (2")    | -  | 4.1 | 100 | 90 | 90 | 88 | 19.1 | --  | --  | --  |  |  |
|   |                                                                                    |                                                                                    | 36/7" | Tan Silty Sand (Caliche) |    | 6.0 |     |    |    |    |      |     |     |     |  |  |
| 5 |  |  | 24    |                          | SM | 3.5 | 100 | 86 | 76 | 60 | 26.1 | SNP | SNP | SNP |  |  |
|   |                                                                                    |                                                                                    | 54    |                          |    | 3.5 |     |    |    |    |      |     |     |     |  |  |
|   |                                                                                    |                                                                                    | 46    |                          |    | 3.7 |     |    |    |    |      |     |     |     |  |  |
|   |                                                                                    |                                                                                    | 36    |                          |    | 3.7 |     |    |    |    |      |     |     |     |  |  |
|   |                                                                                    |                                                                                    | 26    |                          |    | 3.5 |     |    |    |    |      |     |     |     |  |  |
|   |                                                                                    |                                                                                    | 18/6" |                          |    | 3.5 |     |    |    |    |      |     |     |     |  |  |
|   |                                                                                    |                                                                                    |       |                          |    |     |     |    |    |    |      |     |     |     |  |  |
|   |                                                                                    |                                                                                    | 43    |                          |    | 3.9 |     |    |    |    |      |     |     |     |  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-4**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/5/17

**COORDINATES:** 32.155606  
-103.949216  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |        |  |                        |    |     |    |    |    |      |     |     |     |  |  |  |
|----|--|--------|--|------------------------|----|-----|----|----|----|------|-----|-----|-----|--|--|--|
| 10 |  | 86/9"  |  | Reddish Tan Silty Sand |    | 3.9 |    |    |    |      |     |     |     |  |  |  |
|    |  | 86/10" |  |                        |    | 4.2 |    |    |    |      |     |     |     |  |  |  |
|    |  |        |  |                        |    |     |    |    |    |      |     |     |     |  |  |  |
| 15 |  | 77/6"  |  |                        | SM | 3.3 |    |    |    |      |     |     |     |  |  |  |
|    |  |        |  |                        |    |     |    |    |    |      |     |     |     |  |  |  |
|    |  |        |  |                        |    |     |    |    |    |      |     |     |     |  |  |  |
|    |  |        |  |                        |    | 96  | 89 | 87 | 82 | 23.5 | SNP | SNP | SNP |  |  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**BORING NO.: BH-4**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/5/17

**COORDINATES:** 32.155606  
-103.949216  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |  |    |                        |  |     |  |  |  |  |  |  |  |  |  |  |
|----|--|--|----|------------------------|--|-----|--|--|--|--|--|--|--|--|--|--|
| 20 |  |  | 28 |                        |  | 3.0 |  |  |  |  |  |  |  |  |  |  |
|    |  |  | 49 |                        |  | 3.0 |  |  |  |  |  |  |  |  |  |  |
| 25 |  |  | 62 | Reddish Tan Silty Sand |  | 2.8 |  |  |  |  |  |  |  |  |  |  |
|    |  |  | 75 |                        |  | 2.8 |  |  |  |  |  |  |  |  |  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**BORING NO.: BH-4**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/5/17

**COORDINATES:** 32.155606  
-103.949216  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                     |       |  |  |    |     |     |    |    |    |      |     |     |     |  |  |
|----|-------------------------------------------------------------------------------------|-------|--|--|----|-----|-----|----|----|----|------|-----|-----|-----|--|--|
| 30 |  | 59/9" |  |  | SM | 4.6 | 100 | 96 | 94 | 90 | 44.2 | SNP | SNP | SNP |  |  |
|    |                                                                                     |       |  |  |    |     |     |    |    |    |      |     |     |     |  |  |
| 35 |  | 42/5" |  |  |    | 4.2 |     |    |    |    |      |     |     |     |  |  |
|    |                                                                                     |       |  |  |    |     |     |    |    |    |      |     |     |     |  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER

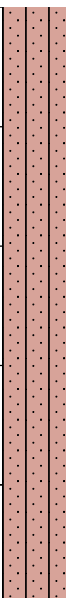
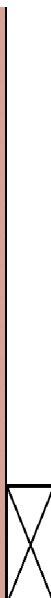


SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/5/17

**COORDINATES:** 32.155606  
 -103.949216  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                    |                                                                                    |    |  |  |     |  |  |  |  |  |  |  |  |  |  |
|----|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----|--|--|-----|--|--|--|--|--|--|--|--|--|--|
| 40 |  |  | 66 |  |  | 9.8 |  |  |  |  |  |  |  |  |  |  |
|----|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----|--|--|-----|--|--|--|--|--|--|--|--|--|--|



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/12/17

**COORDINATES:** 32.154269  
-103.948765  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|   |        |                                |    |     |     |    |    |    |      |    |    |    |        |  |  |
|---|--------|--------------------------------|----|-----|-----|----|----|----|------|----|----|----|--------|--|--|
| 0 | 10/6"  | Brown Silty Sand               | -- | 2.6 | 100 | 86 | 83 | 80 | 14.8 | -- | -- | -- | 3,620  |  |  |
|   | 50/3"  | Tan Silty Sand (Caliche)       | -- | 9.7 | --  | -- | -- | -- | --   | -- | -- | -- | >8,000 |  |  |
| 5 | 37     | Light Tan Silty Sand (Caliche) |    | 2.4 |     |    |    |    |      |    |    |    | 7,360  |  |  |
|   | 62     |                                |    | 2.4 |     |    |    |    |      |    |    |    | >8,000 |  |  |
|   | 80/11" |                                |    | 2.9 |     |    |    |    |      |    |    |    | >8,000 |  |  |
|   |        |                                |    |     |     |    |    |    |      |    |    |    |        |  |  |
|   |        |                                |    |     |     |    |    |    |      |    |    |    |        |  |  |
|   | 43     |                                | -- | 3.4 | 100 | 91 | 85 | 73 | 30.7 | -- | -- | -- | >8,000 |  |  |
|   | 41     |                                |    | 3.4 |     |    |    |    |      |    |    |    | >8,000 |  |  |
|   | 37     |                                |    | 4.7 |     |    |    |    |      |    |    |    | 7,360  |  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



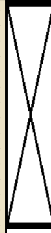
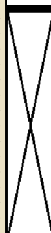
SHELBY SAMPLE

**BORING NO.: BH-5**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/12/17

**COORDINATES:** 32.154269  
-103.948765  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                     |    |  |                |    |     |    |    |    |    |      |     |     |     |        |  |
|----|-------------------------------------------------------------------------------------|----|--|----------------|----|-----|----|----|----|----|------|-----|-----|-----|--------|--|
| 10 |   | 42 |  | Tan Silty Sand |    | 4.7 |    |    |    |    |      |     |     |     | >8,000 |  |
|    |                                                                                     | 35 |  |                |    | 4.0 |    |    |    |    |      |     |     |     | 6,920  |  |
|    |                                                                                     | 51 |  |                |    | 4.0 |    |    |    |    |      |     |     |     | >8,000 |  |
| 15 |  | 22 |  |                | SM | 3.9 | 97 | 91 | 89 | 85 | 43.2 | SNP | SNP | SNP | 4,060  |  |
|    |                                                                                     | 45 |  |                |    | 3.9 |    |    |    |    |      |     |     |     | >8,000 |  |
|    |                                                                                     |    |  |                |    |     |    |    |    |    |      |     |     |     |        |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-5**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/12/17

**COORDINATES:** 32.154269  
-103.948765  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |       |  |                         |  |     |  |  |  |  |  |  |  |        |  |  |
|----|--|-------|--|-------------------------|--|-----|--|--|--|--|--|--|--|--------|--|--|
| 20 |  | 25/2" |  | Brownish Tan Silty Sand |  | --  |  |  |  |  |  |  |  | >8,000 |  |  |
| 25 |  | 51    |  |                         |  | 3.2 |  |  |  |  |  |  |  | >8,000 |  |  |
|    |  | 50/4" |  |                         |  | 3.2 |  |  |  |  |  |  |  | >8,000 |  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-5**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/12/17

**COORDINATES:** 32.154269  
-103.948765  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |    |    |  |    |     |     |     |     |    |      |     |     |     |        |  |
|----|--|----|----|--|----|-----|-----|-----|-----|----|------|-----|-----|-----|--------|--|
| 30 |  | 42 | 50 |  | SM | 3.7 | 100 | 100 | 100 | 98 | 31.1 | SNP | SNP | SNP | >8,000 |  |
|    |  |    |    |  |    | 3.7 |     |     |     |    |      |     |     |     | >8,000 |  |
| 35 |  | 33 |    |  |    | 2.9 |     |     |     |    |      |     |     |     | 6,480  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

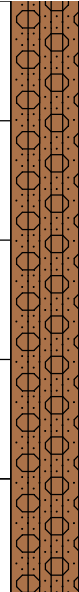
ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-5**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/12/17

**COORDINATES:** 32.154269  
-103.948765  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|                                                                                    |       |    |  |  |  |     |  |  |  |  |  |  |  |  |        |  |
|------------------------------------------------------------------------------------|-------|----|--|--|--|-----|--|--|--|--|--|--|--|--|--------|--|
|  | 93/9" |    |  |  |  | 2.9 |  |  |  |  |  |  |  |  | >8,000 |  |
|                                                                                    |       | 58 |  |  |  | 1.6 |  |  |  |  |  |  |  |  | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/6/17

**COORDINATES:** 32.156857  
 -103.948251  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'6"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|   |  |  |       |                         |    |     |     |     |     |    |      |     |     |     |        |  |
|---|--|--|-------|-------------------------|----|-----|-----|-----|-----|----|------|-----|-----|-----|--------|--|
| 0 |  |  | 3     | Brown Silty Sand        |    | 7.5 |     |     |     |    |      |     |     |     | -      |  |
|   |  |  | 2     |                         | SM | 7.5 | 100 | 100 | 100 | 96 | 29.9 | SNP | SNP | SNP | -      |  |
|   |  |  | 5/6"  |                         |    | 5.7 |     |     |     |    |      |     |     |     | 1,410  |  |
|   |  |  | 11    |                         |    | 5.7 |     |     |     |    |      |     |     |     | 1,630  |  |
|   |  |  | 7/6"  | Light Brown Silty Sand  | -- | 4.9 | 94  | 81  | 74  | 63 | 22.7 | --  | --  | --  | 2,290  |  |
|   |  |  | 82    | Brownish Tan Silty Sand |    | 3.9 |     |     |     |    |      |     |     |     | >8,000 |  |
| 5 |  |  |       |                         |    |     |     |     |     |    |      |     |     |     |        |  |
|   |  |  | 50/2" |                         | SM | 3.1 | 100 | 93  | 85  | 70 | 32.1 | SNP | SNP | SNP | >8,000 |  |
|   |  |  |       |                         |    |     |     |     |     |    |      |     |     |     |        |  |
|   |  |  | 57    | Light Tan Silty Sand    |    | 3.4 |     |     |     |    |      |     |     |     | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/6/17

**COORDINATES:** 32.156857  
-103.948251  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'6"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                     |                                                                                     |    |                      |    |     |     |    |    |    |      |     |     |     |        |  |
|----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|----------------------|----|-----|-----|----|----|----|------|-----|-----|-----|--------|--|
| 10 |    |    | 82 |                      | SM | 3.4 | 100 | 94 | 89 | 80 | 33.8 | SNP | SNP | SNP | >8,000 |  |
|    |                                                                                     |                                                                                     | 69 |                      |    | 3.9 |     |    |    |    |      |     |     |     | >8,000 |  |
|    |                                                                                     |                                                                                     | 42 |                      |    | 3.9 |     |    |    |    |      |     |     |     | >8,000 |  |
| 15 |  |  | 20 | Light Tan Silty Sand | SM | 4.2 | 100 | 90 | 86 | 81 | 26.9 | SNP | SNP | SNP | 3,620  |  |
|    |                                                                                     |                                                                                     | 56 |                      |    | 4.2 |     |    |    |    |      |     |     |     | >8,000 |  |
|    |                                                                                     |                                                                                     |    |                      |    |     |     |    |    |    |      |     |     |     |        |  |

 SPLIT SPOON SAMPLE
  AIR ROTARY
  WATER
  SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/6/17

**COORDINATES:** 32.156857  
-103.948251  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'6"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |  |       |                       |  |     |  |  |  |  |  |  |  |        |  |  |
|----|--|--|-------|-----------------------|--|-----|--|--|--|--|--|--|--|--------|--|--|
| 20 |  |  |       | Reddish Tan Lean Silt |  | 7.6 |  |  |  |  |  |  |  | 5,380  |  |  |
|    |  |  | 28    |                       |  |     |  |  |  |  |  |  |  |        |  |  |
|    |  |  | 35    |                       |  | 7.6 |  |  |  |  |  |  |  | >8,000 |  |  |
|    |  |  |       |                       |  |     |  |  |  |  |  |  |  |        |  |  |
| 25 |  |  |       |                       |  | 7.8 |  |  |  |  |  |  |  | >8,000 |  |  |
|    |  |  | 48    |                       |  |     |  |  |  |  |  |  |  |        |  |  |
|    |  |  | 40/4" |                       |  | 7.8 |  |  |  |  |  |  |  | >8,000 |  |  |
|    |  |  |       |                       |  |     |  |  |  |  |  |  |  |        |  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/6/17

**COORDINATES:** 32.156857  
 -103.948251  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'6"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                     |       |  |                         |    |      |    |    |    |      |    |    |   |        |  |  |
|----|-------------------------------------------------------------------------------------|-------|--|-------------------------|----|------|----|----|----|------|----|----|---|--------|--|--|
| 30 |  | 30/2" |  |                         | ML | 97   | 88 | 85 | 81 | 59.5 | 29 | 23 | 6 | >8,000 |  |  |
| 35 |  | 52/7" |  | Reddish Brown Lean Silt |    | 15.7 |    |    |    |      |    |    |   | >8,000 |  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/6/17

**COORDINATES:** 32.156857  
-103.948251  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'6"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |    |       |  |  |      |  |  |  |  |  |  |  |  |        |  |
|----|--|----|-------|--|--|------|--|--|--|--|--|--|--|--|--------|--|
| 40 |  | 62 | 50/6" |  |  | 23.8 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |  |    |       |  |  | 23.8 |  |  |  |  |  |  |  |  | >8,000 |  |
| 45 |  |    |       |  |  |      |  |  |  |  |  |  |  |  |        |  |
|    |  |    |       |  |  |      |  |  |  |  |  |  |  |  |        |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-6**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/6/17

**COORDINATES:** 32.156857  
-103.948251  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'6"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |  |       |  |  |      |  |  |  |  |  |  |  |  |        |  |
|----|--|--|-------|--|--|------|--|--|--|--|--|--|--|--|--------|--|
| 45 |  |  | 57    |  |  | 22.4 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |  |  | 25/2" |  |  | 22.4 |  |  |  |  |  |  |  |  | >8,000 |  |
| 50 |  |  | 54/8" |  |  | 12.9 |  |  |  |  |  |  |  |  | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**BORING NO.: BH-6**

COORDINATES: 32.156857  
-103.948251  
SURFACE ELEVATION: --'  
BOREHOLE DEPTH: 41'6"  
DEPTH TO WATER: N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                  |              |               |               |                |                   | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|------------------|--------------|---------------|---------------|----------------|-------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3 / 4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) |                        |          |                      |

[illegible]

## SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-6**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/6/17

**COORDINATES:** 32.156857  
-103.948251  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'6"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |   |        |  |  |      |  |  |  |  |  |  |  |  |        |  |
|----|--|---|--------|--|--|------|--|--|--|--|--|--|--|--|--------|--|
| 65 |  | X | 61/8"  |  |  | 20.6 |  |  |  |  |  |  |  |  | >8,000 |  |
| 70 |  | X | 72/11" |  |  | 17.9 |  |  |  |  |  |  |  |  | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/6/17

**COORDINATES:** 32.156857  
 -103.948251  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'6"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                     |  |        |  |  |      |  |  |  |  |  |  |  |  |        |  |
|----|-------------------------------------------------------------------------------------|--|--------|--|--|------|--|--|--|--|--|--|--|--|--------|--|
| 75 |  |  | 68/11" |  |  | 15.5 |  |  |  |  |  |  |  |  | >8,000 |  |
| 80 |  |  | 50     |  |  | 17.7 |  |  |  |  |  |  |  |  | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER

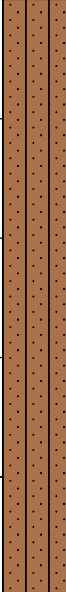
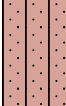


SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.155400  
 -103.947815  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'11"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|   |                                                                                     |                                                                                     |       |                                      |    |     |     |    |    |    |      |     |     |     |        |  |
|---|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|--------------------------------------|----|-----|-----|----|----|----|------|-----|-----|-----|--------|--|
| 0 |    |    | 4     | Brown Silty Sand                     | -  | 4.2 | 100 | 86 | 84 | 83 | 20.6 | -   | -   | -   | -      |  |
|   |   |    | 28/6" | Brownish Tan Caliche                 | -  | 6.3 |     |    |    |    |      |     |     |     | >8,000 |  |
|   |                                                                                     |                                                                                     |       |                                      | -  |     |     |    |    |    |      |     |     |     |        |  |
| 5 |                                                                                     |                                                                                     |       |                                      |    |     |     |    |    |    |      |     |     |     |        |  |
|   |  |  | 70    | Tan Silty Sand with Gravel (Caliche) | SM | 3.4 |     |    |    |    |      |     |     |     | >8,000 |  |
|   |                                                                                     |                                                                                     |       |                                      |    |     |     |    |    |    |      |     |     |     |        |  |
|   |                                                                                     |                                                                                     |       |                                      |    |     |     |    |    |    |      |     |     |     |        |  |
|   |                                                                                     |  | 24/6" |                                      |    | 4.2 | 100 | 84 | 74 | 62 | 26.2 | SNP | SNP | SNP | >8,000 |  |
|   |                                                                                     |                                                                                     |       |                                      |    |     |     |    |    |    |      |     |     |     |        |  |
|   |  |  | 37    | Reddish Tan Silty Sand               |    | 4.2 |     |    |    |    |      |     |     |     | 7,360  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER

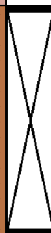


SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.155400  
 -103.947815  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'11"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                     |        |  |                          |    |     |     |    |    |    |      |     |     |     |        |  |
|----|-------------------------------------------------------------------------------------|--------|--|--------------------------|----|-----|-----|----|----|----|------|-----|-----|-----|--------|--|
| 10 |    | 65     |  |                          | SM | 4.2 |     |    |    |    |      |     |     |     | >8,000 |  |
|    |                                                                                     | 38     |  |                          |    | 3.6 |     |    |    |    |      |     |     |     | 7,580  |  |
|    |                                                                                     | 61     |  |                          |    | 3.6 | 100 | 90 | 88 | 83 | 23.7 | SNP | SNP | SNP | >8,000 |  |
| 15 |  |        |  | Reddish Brown Silty Sand |    |     |     |    |    |    |      |     |     |     |        |  |
|    |                                                                                     | 40     |  |                          |    | 3.7 |     |    |    |    |      |     |     |     | >8,000 |  |
|    |                                                                                     | 84/11" |  |                          |    | 3.7 |     |    |    |    |      |     |     |     | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-7**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.155400  
-103.947815  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'11"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |       |  |  |    |     |     |    |    |    |      |     |     |        |        |  |
|----|--|-------|--|--|----|-----|-----|----|----|----|------|-----|-----|--------|--------|--|
| 20 |  | 50/6" |  |  |    | 5.1 |     |    |    |    |      |     |     | >8,000 |        |  |
| 25 |  | 30/3" |  |  | SM | --  | 100 | 94 | 91 | 88 | 18.7 | SNP | SNP | SNP    | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER

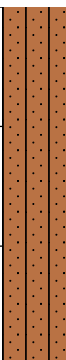


SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.155400  
 -103.947815  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'11"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                     |                                                                                     |       |                        |    |      |     |    |    |    |      |    |    |    |        |  |
|----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|------------------------|----|------|-----|----|----|----|------|----|----|----|--------|--|
| 30 |   |  | 50/6" | Brownish Red Lean Clay |    | 14.2 |     |    |    |    |      |    |    |    | >8,000 |  |
| 35 |  |  | 72    |                        | CL | 10.3 | 100 | 99 | 94 | 86 | 66.2 | 43 | 26 | 17 | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-7**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.155400  
-103.947815  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'11"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |  |        |  |  |      |  |  |  |  |  |  |  |  |        |  |
|----|--|--|--------|--|--|------|--|--|--|--|--|--|--|--|--------|--|
| 40 |  |  | 63/11" |  |  | 24.4 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |  |  |        |  |  |      |  |  |  |  |  |  |  |  |        |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/12/17

**COORDINATES:** 32.156060  
-103.947333  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|   |                                                                                     |                                                                                     |        |                          |    |     |  |  |  |  |  |  |  |  |        |  |
|---|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------|--------------------------|----|-----|--|--|--|--|--|--|--|--|--------|--|
| 0 |    |    | 2/6"   | Brown Silty Sand         | SM | 4.3 |  |  |  |  |  |  |  |  | 2/6"   |  |
|   |    |    | 69     | Tan Silty Sand (Caliche) | SM | 6.0 |  |  |  |  |  |  |  |  | >8,000 |  |
|   |   |   | 90/10" |                          |    | 3.8 |  |  |  |  |  |  |  |  | >8,000 |  |
|   |  |  |        |                          |    |     |  |  |  |  |  |  |  |  |        |  |
|   |  |  | 35     |                          |    | 3.9 |  |  |  |  |  |  |  |  | 6,920  |  |
| 5 |  |  | 24     |                          |    | 3.9 |  |  |  |  |  |  |  |  | 4,500  |  |
|   |  |  | 29     |                          |    | 5.2 |  |  |  |  |  |  |  |  | 5,600  |  |
|   |  |  | 31     |                          |    | 5.2 |  |  |  |  |  |  |  |  | 6,040  |  |
|   |  |  | 20     | Reddish Tan Silty Sand   |    | 4.1 |  |  |  |  |  |  |  |  | 3,620  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/12/17

**COORDINATES:** 32.156060  
-103.947333  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |  |       |  |    |     |  |  |  |  |  |  |  |        |  |  |
|----|--|--|-------|--|----|-----|--|--|--|--|--|--|--|--------|--|--|
| 10 |  |  | 29    |  |    | 4.1 |  |  |  |  |  |  |  | 5,600  |  |  |
|    |  |  | 43    |  |    | 3.5 |  |  |  |  |  |  |  | >8,000 |  |  |
|    |  |  | 76    |  |    | 3.5 |  |  |  |  |  |  |  | >8,000 |  |  |
| 15 |  |  | 71    |  | SM | 3.7 |  |  |  |  |  |  |  | >8,000 |  |  |
|    |  |  | 25/2" |  |    | 3.7 |  |  |  |  |  |  |  | >8,000 |  |  |
|    |  |  |       |  |    |     |  |  |  |  |  |  |  |        |  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-8**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/12/17

**COORDINATES:** 32.156060  
-103.947333  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |       |  |                                       |  |     |  |  |  |  |  |  |  |  |        |  |
|----|--|-------|--|---------------------------------------|--|-----|--|--|--|--|--|--|--|--|--------|--|
| 20 |  | 50/6" |  |                                       |  | 3.3 |  |  |  |  |  |  |  |  | >8,000 |  |
| 25 |  | 50/6" |  | Tan Silty Sand with River Rock Gravel |  | 2.3 |  |  |  |  |  |  |  |  | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-8**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/12/17

**COORDINATES:** 32.156060  
-103.947333  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   | BEARING CAPACITY (psf) | qu (psf)              | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|------------------------|-----------------------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL)     | PLASTICITY INDEX (PI) |                      |

|    |  |       |                       |    |      |  |  |  |  |  |  |  |  |        |  |
|----|--|-------|-----------------------|----|------|--|--|--|--|--|--|--|--|--------|--|
| 30 |  | 50/6" | Reddish Tan Lean Silt | SM | 12.2 |  |  |  |  |  |  |  |  | >8,000 |  |
| 35 |  | 80/8" |                       | ML | 10.0 |  |  |  |  |  |  |  |  | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**BORING NO.: BH-8**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/12/17

**COORDINATES:** 32.156060  
-103.947333  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 41'0"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   | BEARING CAPACITY (psf) | qu (psf)              | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|------------------------|-----------------------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL)     | PLASTICITY INDEX (PI) |                      |

|    |  |  |    |  |  |     |  |  |  |  |  |  |  |  |        |  |
|----|--|--|----|--|--|-----|--|--|--|--|--|--|--|--|--------|--|
| 40 |  |  | 71 |  |  | 2.4 |  |  |  |  |  |  |  |  | >8,000 |  |
|----|--|--|----|--|--|-----|--|--|--|--|--|--|--|--|--------|--|



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-9**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.156060  
-103.947333  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'9"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|   |  |        |  |                          |    |     |  |  |  |  |  |  |  |  |        |  |
|---|--|--------|--|--------------------------|----|-----|--|--|--|--|--|--|--|--|--------|--|
| 0 |  | 2/6"   |  | Brown Silty Sand         | SM | 5.0 |  |  |  |  |  |  |  |  | 2/6"   |  |
|   |  | 85/10" |  | Tan Silty Sand (Caliche) |    | 7.8 |  |  |  |  |  |  |  |  | >8,000 |  |
|   |  |        |  |                          |    |     |  |  |  |  |  |  |  |  |        |  |
|   |  | 50/6"  |  |                          |    | 6.7 |  |  |  |  |  |  |  |  | >8,000 |  |
|   |  |        |  |                          |    |     |  |  |  |  |  |  |  |  |        |  |
|   |  | 92/11" |  |                          |    | 3.7 |  |  |  |  |  |  |  |  | >8,000 |  |
| 5 |  |        |  |                          |    |     |  |  |  |  |  |  |  |  |        |  |
|   |  | 72/11" |  |                          |    | 2.3 |  |  |  |  |  |  |  |  | >8,000 |  |
|   |  |        |  |                          |    |     |  |  |  |  |  |  |  |  |        |  |
|   |  | 35/2"  |  |                          |    | 3.0 |  |  |  |  |  |  |  |  | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-9**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.156060  
-103.947333  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'9"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   | BEARING CAPACITY (psf) | qu (psf)              | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|------------------------|-----------------------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL)     | PLASTICITY INDEX (PI) |                      |

|    |  |        |  |  |    |     |  |  |  |  |  |  |  |  |        |
|----|--|--------|--|--|----|-----|--|--|--|--|--|--|--|--|--------|
| 10 |  | 40/2"  |  |  | SM | 3.7 |  |  |  |  |  |  |  |  | >8,000 |
| 15 |  | 42     |  |  |    | 3.4 |  |  |  |  |  |  |  |  | >8,000 |
|    |  | 59/11" |  |  |    | 3.4 |  |  |  |  |  |  |  |  | >8,000 |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-9**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.156060  
-103.947333  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'9"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |        |                                       |     |  |  |  |  |  |  |  |  |  |  |        |  |
|----|--|--------|---------------------------------------|-----|--|--|--|--|--|--|--|--|--|--|--------|--|
| 20 |  | 52     | Tan Silty Sand with River Rock Gravel | 2.4 |  |  |  |  |  |  |  |  |  |  | >8,000 |  |
|    |  | 57/7"  |                                       | 2.4 |  |  |  |  |  |  |  |  |  |  | >8,000 |  |
| 25 |  | 75/11" |                                       | 1.8 |  |  |  |  |  |  |  |  |  |  | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-9**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.156060  
-103.947333  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'9"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |       |  |                       |    |     |  |  |  |  |  |  |  |        |  |  |
|----|--|-------|--|-----------------------|----|-----|--|--|--|--|--|--|--|--------|--|--|
| 30 |  | 75/8" |  |                       | SM | 1.6 |  |  |  |  |  |  |  | >8,000 |  |  |
| 35 |  | 77    |  | Reddish Tan Lean Silt |    | 9.3 |  |  |  |  |  |  |  | >8,000 |  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

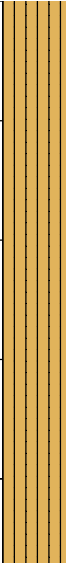
ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-9**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.156060  
-103.947333  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'9"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                    |                                                                                    |       |  |    |      |  |  |  |  |  |  |  |  |        |  |
|----|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------|--|----|------|--|--|--|--|--|--|--|--|--------|--|
| 40 |  |  |       |  | ML | 18.4 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |                                                                                    |                                                                                    | 68/9" |  |    |      |  |  |  |  |  |  |  |  |        |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/12/17

**COORDINATES:** 32.157237  
-103.946381  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'5"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|   |                                                                                     |                                                                                     |    |                                |    |     |  |  |  |  |  |  |  |        |   |  |
|---|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|--------------------------------|----|-----|--|--|--|--|--|--|--|--------|---|--|
| 0 |   |   | 2  | Brown Silty Sand               | SM | 5.2 |  |  |  |  |  |  |  |        | - |  |
|   |                                                                                     |                                                                                     | 2  |                                |    | 5.2 |  |  |  |  |  |  |  |        | - |  |
| 5 |  |  | 41 | Light Tan Silty Sand (Caliche) | SM | 4.3 |  |  |  |  |  |  |  | >8,000 |   |  |
|   |                                                                                     |                                                                                     | 44 |                                |    | 4.3 |  |  |  |  |  |  |  | >8,000 |   |  |
|   |                                                                                     |                                                                                     | 37 |                                |    | 3.7 |  |  |  |  |  |  |  | 7,360  |   |  |
|   |                                                                                     |                                                                                     | 65 |                                |    | 3.7 |  |  |  |  |  |  |  | >8,000 |   |  |
|   |                                                                                     |                                                                                     | 23 |                                |    | 2.8 |  |  |  |  |  |  |  | 4,280  |   |  |
|   |                                                                                     |                                                                                     | 44 |                                |    | 2.8 |  |  |  |  |  |  |  | >8,000 |   |  |
|   |                                                                                     |                                                                                     | 21 |                                |    | 3.2 |  |  |  |  |  |  |  | 3,840  |   |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-10**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/12/17

**COORDINATES:** 32.157237  
-103.946381  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'5"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |  |    |  |    |     |  |  |  |  |  |  |  |  |       |  |
|----|--|--|----|--|----|-----|--|--|--|--|--|--|--|--|-------|--|
| 10 |  |  | 15 |  |    | 3.2 |  |  |  |  |  |  |  |  | 2,510 |  |
|    |  |  | 10 |  |    | 3.2 |  |  |  |  |  |  |  |  | 1,410 |  |
|    |  |  | 12 |  |    | 3.2 |  |  |  |  |  |  |  |  | 1,850 |  |
| 15 |  |  |    |  |    |     |  |  |  |  |  |  |  |  |       |  |
|    |  |  | 10 |  |    | 3.1 |  |  |  |  |  |  |  |  | 1,410 |  |
|    |  |  | 13 |  |    | 3.1 |  |  |  |  |  |  |  |  | 2,070 |  |
|    |  |  |    |  | SM |     |  |  |  |  |  |  |  |  |       |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/12/17

**COORDINATES:** 32.157237  
-103.946381  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'5"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |  |       |  |  |     |  |  |  |  |  |  |  |        |  |  |
|----|--|--|-------|--|--|-----|--|--|--|--|--|--|--|--------|--|--|
| 20 |  |  | 11    |  |  | 3.7 |  |  |  |  |  |  |  | 1,630  |  |  |
|    |  |  | 17    |  |  | 3.7 |  |  |  |  |  |  |  | 2,950  |  |  |
| 25 |  |  | 43/2" |  |  | 5.8 |  |  |  |  |  |  |  | >8,000 |  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/12/17

**COORDINATES:** 32.157237  
 -103.946381  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'5"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   | BEARING CAPACITY (psf) | qu (psf)              | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|------------------------|-----------------------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL)     | PLASTICITY INDEX (PI) |                      |

|    |                                                                                     |                                                                                     |       |                       |    |      |  |  |  |  |  |  |  |  |        |
|----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|-----------------------|----|------|--|--|--|--|--|--|--|--|--------|
| 30 |   |  | 77/9" | Reddish Tan Lean Silt |    | 15.2 |  |  |  |  |  |  |  |  | >8,000 |
| 35 |  |  | 35/2" |                       | ML | --   |  |  |  |  |  |  |  |  | >8,000 |

 SPLIT SPOON SAMPLE
  AIR ROTARY
  WATER
  SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

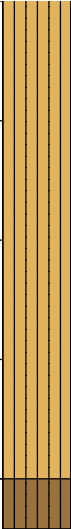
ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-10**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/12/17

**COORDINATES:** 32.157237  
-103.946381  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'5"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                    |                                                                                     |       |                         |    |     |  |  |  |  |  |  |  |  |        |  |
|----|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|-------------------------|----|-----|--|--|--|--|--|--|--|--|--------|--|
| 40 |  |  | 50/5" | Reddish Brown Lean Silt | ML | 3.0 |  |  |  |  |  |  |  |  | >8,000 |  |
|----|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|-------------------------|----|-----|--|--|--|--|--|--|--|--|--------|--|



SPLIT SPOON SAMPLE



AIR ROTARY



WATER

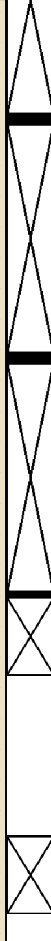


SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.155808  
 -103.945972  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'7"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|   |                                                                                    |                                                                                    |       |                          |    |     |  |  |  |  |  |  |  |  |        |  |
|---|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------|--------------------------|----|-----|--|--|--|--|--|--|--|--|--------|--|
| 0 |   |   | 0     | Brown Sand               | SM | 6.1 |  |  |  |  |  |  |  |  | -      |  |
|   |  |  | 37    | Tan Silty Sand (Caliche) |    | 9.1 |  |  |  |  |  |  |  |  | 7,360  |  |
|   |                                                                                    |                                                                                    | 28    |                          |    | 2.6 |  |  |  |  |  |  |  |  | 5,380  |  |
|   |                                                                                    |                                                                                    | 27    |                          |    | 2.6 |  |  |  |  |  |  |  |  | 5,160  |  |
|   |                                                                                    |                                                                                    | 34    |                          |    | 2.5 |  |  |  |  |  |  |  |  | 6,700  |  |
| 5 |                                                                                    |                                                                                    | 75    |                          |    | 2.5 |  |  |  |  |  |  |  |  | >8,000 |  |
|   |                                                                                    |                                                                                    | 73/8" |                          |    | 3.6 |  |  |  |  |  |  |  |  | >8,000 |  |
|   |                                                                                    |                                                                                    |       |                          |    |     |  |  |  |  |  |  |  |  |        |  |
|   |                                                                                    |                                                                                    | 80/8" |                          | SM | 3.8 |  |  |  |  |  |  |  |  | >8,000 |  |
|   |                                                                                    |                                                                                    |       |                          |    |     |  |  |  |  |  |  |  |  |        |  |

 SPLIT SPOON SAMPLE
  AIR ROTARY
  WATER
  SHELBY SAMPLE



**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.155808  
-103.945972  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'7"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |    |       |                        |    |     |  |  |  |  |  |  |  |  |        |  |
|----|--|----|-------|------------------------|----|-----|--|--|--|--|--|--|--|--|--------|--|
| 10 |  | 74 | 35/2" |                        |    | 4.6 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |  |    |       |                        |    | 4.6 |  |  |  |  |  |  |  |  | >8,000 |  |
| 15 |  | 63 |       | Reddish Tan Silty Sand |    | 3.8 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |  |    | 50/6" |                        |    | 3.8 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |  |    |       |                        | SM |     |  |  |  |  |  |  |  |  |        |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.155808  
 -103.945972  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'7"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                     |    |         |                                       |    |     |     |  |  |  |  |  |  |  |        |  |
|----|-------------------------------------------------------------------------------------|----|---------|---------------------------------------|----|-----|-----|--|--|--|--|--|--|--|--------|--|
| 20 |  | 54 | 25 1/2" | Tan Silty Sand with River Rock Gravel | SM | 1.7 | 1.7 |  |  |  |  |  |  |  | >8,000 |  |
| 25 |  | 81 |         | Reddish Tan Silty Sand                |    | 5.6 |     |  |  |  |  |  |  |  | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.155808  
-103.945972  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'7"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   | BEARING CAPACITY (psf) | qu (psf)              | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|------------------------|-----------------------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL)     | PLASTICITY INDEX (PI) |                      |

|    |  |  |             |  |    |            |  |  |  |  |  |  |  |                 |  |
|----|--|--|-------------|--|----|------------|--|--|--|--|--|--|--|-----------------|--|
| 30 |  |  | 34          |  |    | 1.6        |  |  |  |  |  |  |  | 6,700           |  |
|    |  |  | 24/6"       |  |    | 1.6        |  |  |  |  |  |  |  | >8,000          |  |
| 35 |  |  | 37<br>48/6" |  | SM | 1.1<br>0.9 |  |  |  |  |  |  |  | 7,360<br>>8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-11**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.155808  
-103.945972  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'7"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |  |  |  |  |     |  |  |  |  |  |  |  |  |        |  |
|----|--|--|--|--|--|-----|--|--|--|--|--|--|--|--|--------|--|
| 40 |  |  |  |  |  | 1.1 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |  |  |  |  |  | 1.2 |  |  |  |  |  |  |  |  | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**BORING NO.: BH-12**

|                    |                          |
|--------------------|--------------------------|
| COORDINATES:       | 32.153485<br>-103.945702 |
| SURFACE ELEVATION: | --'                      |
| BOREHOLE DEPTH:    | 0'0"                     |
| DEPTH TO WATER:    | N/A                      |

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) |                        |          |                      |

[illegible]

## SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-13**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.156577  
-103.944887  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'11"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|   |  |  |    |                                       |    |     |     |    |    |    |      |     |     |     |        |  |
|---|--|--|----|---------------------------------------|----|-----|-----|----|----|----|------|-----|-----|-----|--------|--|
| 0 |  |  | 1  | Reddish Brown Silty Sand              |    | 5.6 |     |    |    |    |      |     |     |     | -      |  |
|   |  |  | 2  |                                       |    | 5.6 |     |    |    |    |      |     |     |     | -      |  |
|   |  |  | 3  |                                       | SM | 5.1 | 100 | 99 | 99 | 91 | 21.6 | SNP | SNP | SNP | --     |  |
|   |  |  | 6  |                                       |    | 5.1 |     |    |    |    |      |     |     |     | 530    |  |
|   |  |  | 13 |                                       |    | 4.7 |     |    |    |    |      |     |     |     | 2,070  |  |
| 5 |  |  | 24 | Tan Clayey Sand (Caliche)             |    | 5.0 |     |    |    |    |      |     |     |     | 4,500  |  |
|   |  |  | 27 |                                       | SC | 5.3 | 100 | 93 | 89 | 83 | 38.4 | 26  | 17  | 9   | 5,160  |  |
|   |  |  | 35 |                                       |    | 5.3 |     |    |    |    |      |     |     |     | 6,920  |  |
|   |  |  | 41 | Tan Silty Sand with River Rock Gravel |    | 3.0 |     |    |    |    |      |     |     |     | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-13**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.156577  
-103.944887  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'11"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |       |    |  |  |     |  |  |  |  |  |  |  |  |        |  |
|----|--|-------|----|--|--|-----|--|--|--|--|--|--|--|--|--------|--|
| 10 |  | 43    | 68 |  |  | 3.0 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |  |       |    |  |  | 4.3 |  |  |  |  |  |  |  |  | >8,000 |  |
| 15 |  | 50/5" |    |  |  | 5.1 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |  |       |    |  |  |     |  |  |  |  |  |  |  |  |        |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-13**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.156577  
-103.944887  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'11"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |        |  |  |    |     |     |    |    |    |      |     |     |     |        |  |
|----|--|--------|--|--|----|-----|-----|----|----|----|------|-----|-----|-----|--------|--|
| 20 |  | 72/11" |  |  | SM | 4.4 | 100 | 75 | 70 | 63 | 22.3 | SNP | SNP | SNP | >8,000 |  |
| 25 |  | 50/6"  |  |  |    | --  |     |    |    |    |      |     |     |     | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-13**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.156577  
-103.944887  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'11"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |  |    |                        |    |     |     |     |     |    |      |     |     |     |        |  |
|----|--|--|----|------------------------|----|-----|-----|-----|-----|----|------|-----|-----|-----|--------|--|
| 30 |  |  |    |                        |    |     |     |     |     |    |      |     |     |     |        |  |
|    |  |  | 46 | Reddish Tan Silty Sand |    | 1.9 |     |     |     |    |      |     |     |     | >8,000 |  |
|    |  |  | 72 |                        |    | 1.9 |     |     |     |    |      |     |     |     | >8,000 |  |
| 35 |  |  | 31 |                        | SM | 1.8 | 100 | 100 | 100 | 99 | 13.9 | SNP | SNP | SNP | 6,040  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



**PETTIGREW**  
& ASSOCIATES PA

ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965

**BORING NO.: BH-13**

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.156577  
-103.944887  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'11"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |  |  |        |  |  |     |  |  |  |  |  |  |  |  |        |  |
|----|--|--|--------|--|--|-----|--|--|--|--|--|--|--|--|--------|--|
| 40 |  |  | 55     |  |  | 1.8 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |  |  | 65/11" |  |  | 1.6 |  |  |  |  |  |  |  |  | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER

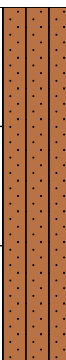


SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.155111  
 -103.944483  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'3"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|   |                                                                                     |  |       |                          |    |     |     |     |    |    |      |     |     |     |        |  |
|---|-------------------------------------------------------------------------------------|--|-------|--------------------------|----|-----|-----|-----|----|----|------|-----|-----|-----|--------|--|
| 0 |   |  | 2     | Reddish Brown Silty Sand |    | 5.0 |     |     |    |    |      |     |     |     | -      |  |
|   |                                                                                     |  | 3     |                          | SM | 5.0 | 100 | 100 | 99 | 92 | 19.1 | SNP | SNP | SNP | --     |  |
|   |                                                                                     |  | 23    |                          |    | 5.4 |     |     |    |    |      |     |     |     | 4,280  |  |
|   |  |  | 48    | Tan Silty Sand           |    | 7.2 |     |     |    |    |      |     |     |     | >8,000 |  |
|   |                                                                                     |  | 48    |                          |    | 5.5 |     |     |    |    |      |     |     |     | >8,000 |  |
| 5 |                                                                                     |  | 50/6" |                          |    | 5.5 |     |     |    |    |      |     |     |     | >8,000 |  |
|   |                                                                                     |  | 82    |                          | SM | 5.1 | 100 | 93  | 89 | 81 | 36.3 | SNP | SNP | SNP | >8,000 |  |
|   |                                                                                     |  | 84    |                          |    | 5.1 |     |     |    |    |      |     |     |     | >8,000 |  |
|   |                                                                                     |  | 64    |                          |    | --  |     |     |    |    |      |     |     |     | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.155111  
-103.944483  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'3"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                     |                                                                                     |       |                        |    |     |  |  |  |  |  |  |  |  |        |  |
|----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|------------------------|----|-----|--|--|--|--|--|--|--|--|--------|--|
| 10 |    |    | 78    | Reddish Tan Silty Sand | SM | -   |  |  |  |  |  |  |  |  | >8,000 |  |
|    |                                                                                     |                                                                                     | 59    |                        |    | 4.0 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |                                                                                     |                                                                                     | 76    |                        |    | 4.0 |  |  |  |  |  |  |  |  | >8,000 |  |
| 15 |  |  | 73    | Reddish Tan Silty Sand |    | 5.4 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |                                                                                     |                                                                                     | 50/5" |                        |    | 5.4 |  |  |  |  |  |  |  |  | >8,000 |  |
|    |                                                                                     |                                                                                     |       |                        |    |     |  |  |  |  |  |  |  |  |        |  |

 SPLIT SPOON SAMPLE
  AIR ROTARY
  WATER
  SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.155111  
 -103.944483  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'3"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                     |       |  |                         |    |      |     |    |    |    |      |     |     |     |        |  |
|----|-------------------------------------------------------------------------------------|-------|--|-------------------------|----|------|-----|----|----|----|------|-----|-----|-----|--------|--|
| 20 |  | 81    |  |                         | SM | 5.5  | 100 | 90 | 84 | 78 | 37.3 | SNP | SNP | SNP | >8,000 |  |
| 25 |  | 50/6" |  | Reddish Brown Lean Clay |    | 13.5 |     |    |    |    |      |     |     |     | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.155111  
 -103.944483  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'3"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                     |    |       |                        |    |      |     |    |    |    |      |    |    |    |        |  |
|----|-------------------------------------------------------------------------------------|----|-------|------------------------|----|------|-----|----|----|----|------|----|----|----|--------|--|
| 30 |  | 46 | 20/2" |                        | CL | 9.3  | 100 | 94 | 90 | 85 | 72.7 | 37 | 20 | 17 | >8,000 |  |
|    |                                                                                     |    |       |                        |    | 16.7 |     |    |    |    |      |    |    |    | >8,000 |  |
| 35 |  | 24 |       | Reddish Brown Fat Clay |    | 20.6 |     |    |    |    |      |    |    |    | 4,500  |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER

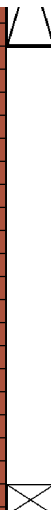


SHELBY SAMPLE

**CLIENT:** Oxy USA  
**PROJECT NAME:** Cedar Canyon Produced Water Ponds  
**PROJECT NO.:** 2017.1164  
**DATE DRILLED:** 10/11/17

**COORDINATES:** 32.155111  
 -103.944483  
**SURFACE ELEVATION:** --'  
**BOREHOLE DEPTH:** 40'3"  
**DEPTH TO WATER:** N/A

| DEPTH (FT) | LITHOLOGIC SYMBOL | SAMPLE RECOVERED | BLOWS PER FOOT | DESCRIPTION | SOIL CLASSIFICATION | LABORATORY TEST DATA |                |              |               |               |                |                   |                    | BEARING CAPACITY (psf) | qu (psf) | SHEAR STRENGTH (tsf) |
|------------|-------------------|------------------|----------------|-------------|---------------------|----------------------|----------------|--------------|---------------|---------------|----------------|-------------------|--------------------|------------------------|----------|----------------------|
|            |                   |                  |                |             |                     | % MOISTURE           | % PASSING 3/4" | % PASSING #4 | % PASSING #10 | % PASSING #40 | % PASSING #200 | LIQUID LIMIT (LL) | PLASTIC LIMIT (PL) | PLASTICITY INDEX (PI)  |          |                      |

|    |                                                                                    |                                                                                    |       |  |    |  |     |    |    |    |      |    |    |    |        |  |
|----|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------|--|----|--|-----|----|----|----|------|----|----|----|--------|--|
| 40 |  |  | 30/4" |  | CH |  | 100 | 99 | 98 | 95 | 91.6 | 53 | 22 | 31 | >8,000 |  |
|    |                                                                                    |                                                                                    | 25/3" |  |    |  |     |    |    |    |      |    |    |    | >8,000 |  |



SPLIT SPOON SAMPLE



AIR ROTARY



WATER



SHELBY SAMPLE



## Appendices

---

### Appendix 4 – Corral Fly - Recycling Containment Engineering Drawings





|                   |                           |
|-------------------|---------------------------|
| PROJECT ENGINEER: | Jeremy E. Baker, PE       |
| PROJECT DESIGNER: | Teodoro Cano-Mota, EI III |
| DRAWN BY:         | TCM                       |

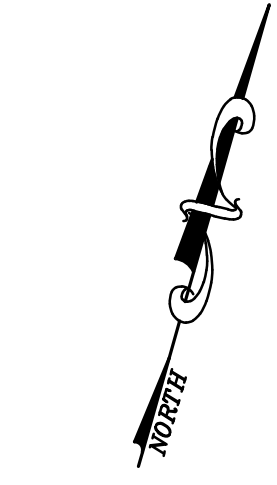
|  |                             |
|--|-----------------------------|
|  | TEMPORARY BARBED FENCE      |
|  | EXIST. GRADE 1.0' CONTOUR   |
|  | EXIST. GRADE 5.0' CONTOUR   |
|  | FINISHED GRADE 5.0' CONTOUR |
|  | FINISHED GRADE 1.0' CONTOUR |
|  | DRIVING SURFACE             |
|  | 3' FREEBOARD DEPTH          |
|  | CONTAINMENT FENCE           |
|  | ANCHOR TRENCH               |
|  | DITCH FLOWLINE              |
|  | PERMANENT CHAINLINK FENCE   |

[illegible]

OXY U.S.A. INC.

SHEET:

CS-100



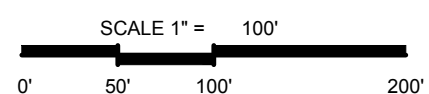
### LEGEND

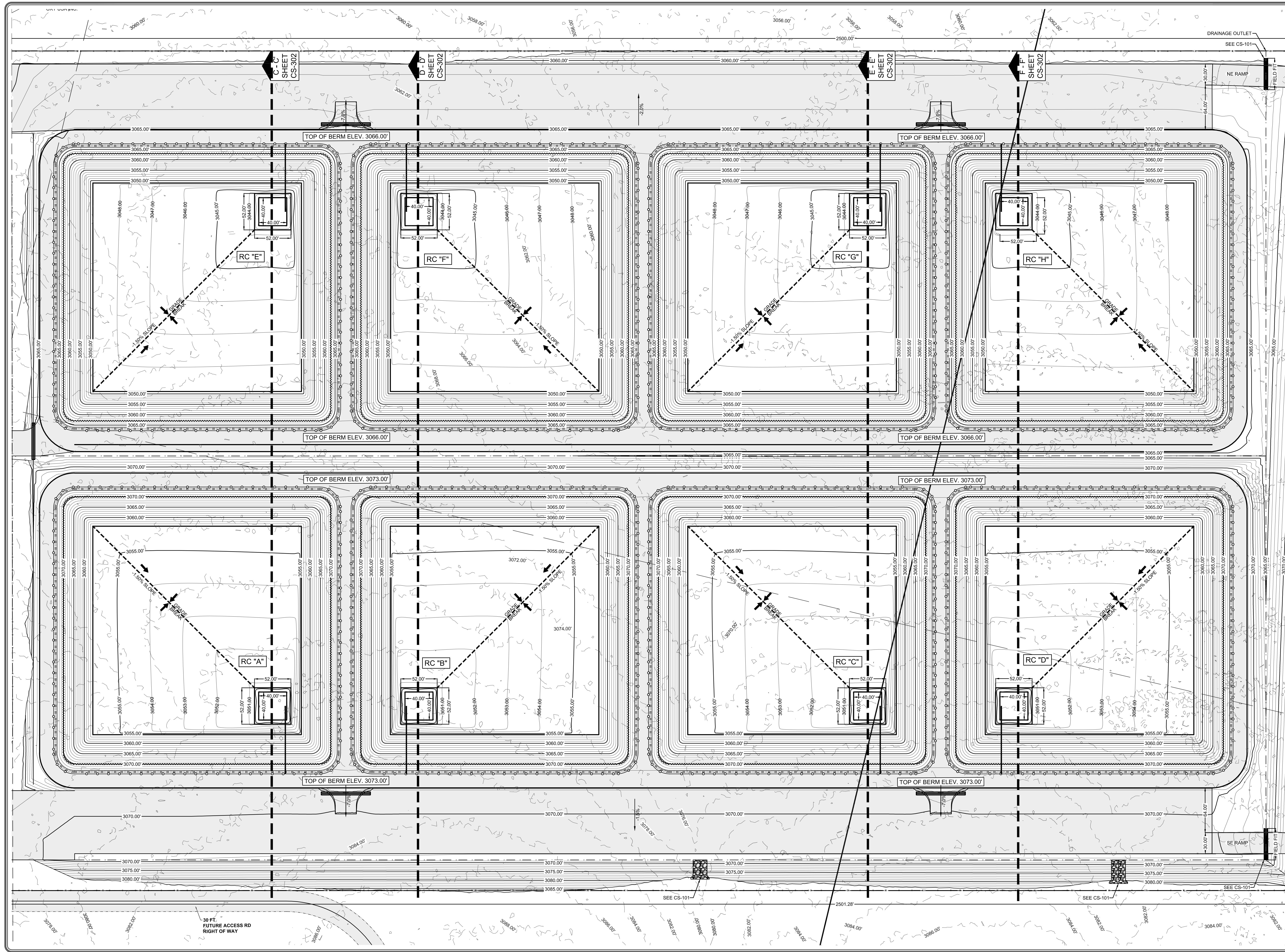
- [illegible]

DOXY U.S.A. INC.

SHEET:

CS-101





**PETTIGREW & ASSOCIATES PA**  
ENGINEERING | SURVEYING | TESTING  
DEFINING QUALITY SINCE 1965  
100 E. Navajo Drive Suite 100 Hobbs New Mexico 88240  
T 575 393 9827 F 575 393 1543  
Pettigrew.us

**JEREMY BAKER**  
NEW MEXICO  
16207  
REGISTERED PROFESSIONAL ENGINEER  
12/20/2017

PROJECT ENGINEER: Jeremy E. Baker, PE  
PROJECT DESIGNER: Teodoro Cano-Mota, EI III  
DRAWN BY: TCM

**LEGEND**

- TEMPORARY BARBED FENCE
- EXIST. GRADE 1.0' CONTOUR
- EXIST. GRADE 5.0' CONTOUR
- FINISHED GRADE 5.0' CONTOUR
- FINISHED GRADE 1.0' CONTOUR
- DRIVING SURFACE
- 3" FREEBOARD DEPTH
- CONTAINMENT FENCE
- ANCHOR TRENCH
- DITCH FLOWLINE
- PERMANENT CHAINLINK FENCE

**SCALE 1" = 60'**

**NORTH**

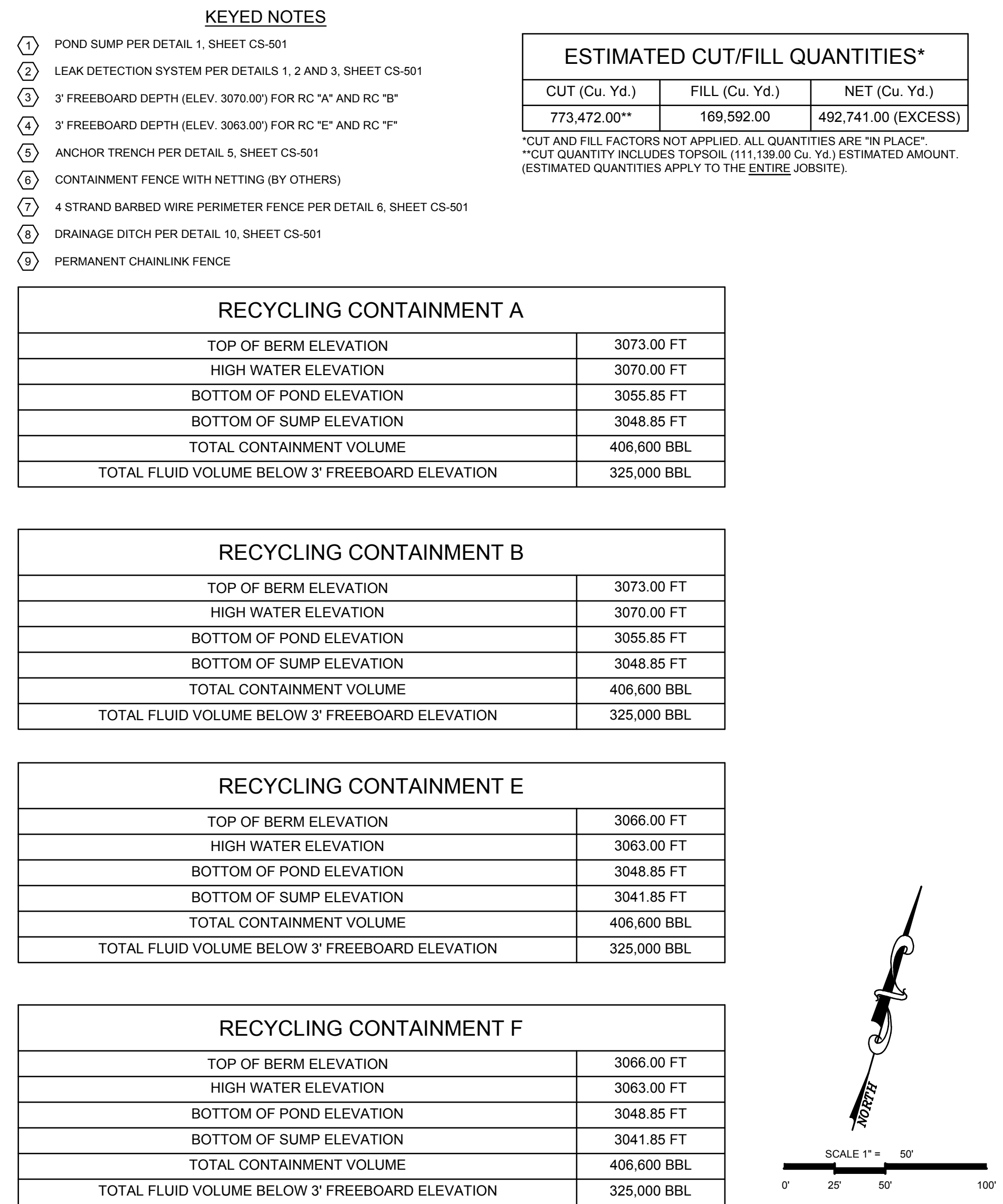
**SITE GRADING PLAN**

**CORRAL FLY RECYCLING CONTAINMENT**

**OXY U.S.A. INC.**

PROJECT NUMBER: 2017.1164

SHEET: CS-102



Z:\2017.1164\Engineering\ACAD\FINAL DESIGN CORRAL FLY 12-11-17\CS-103.dwg 12/20/2017 6:43 PM



| KEYED NOTES |                                                                 | ESTIMATED CUT/FILL QUANTITIES* |                |                     |
|-------------|-----------------------------------------------------------------|--------------------------------|----------------|---------------------|
| ①           | POND SUMP PER DETAIL 1, SHEET CS-501                            | CUT (Cu. Yd.)                  | FILL (Cu. Yd.) | NET (Cu. Yd.)       |
| ②           | LEAK DETECTION SYSTEM PER DETAILS 1, 2 AND 3, SHEET CS-501      | 773,472.00**                   | 169,592.00     | 492,741.00 (EXCESS) |
| ③           | 3' FREEBOARD DEPTH (ELEV. 3070.00') FOR RC "A" AND RC "B"       |                                |                |                     |
| ④           | 3' FREEBOARD DEPTH (ELEV. 3063.00') FOR RC "C" AND RC "F"       |                                |                |                     |
| ⑤           | ANCHOR TRENCH PER DETAIL 5, SHEET CS-501                        |                                |                |                     |
| ⑥           | CONTAINMENT FENCE WITH NETTING (BY OTHERS)                      |                                |                |                     |
| ⑦           | 4 STRAND BARBED WIRE PERIMETER FENCE PER DETAIL 6, SHEET CS-501 |                                |                |                     |
| ⑧           | DRAINAGE DITCH PER DETAIL 11, SHEET CS-501                      |                                |                |                     |
| ⑨           | PERMANENT CHANLINK FENCE                                        |                                |                |                     |

| RECYCLING CONTAINMENT C                         |             |
|-------------------------------------------------|-------------|
| TOP OF BERM ELEVATION                           | 3073.00 FT  |
| HIGH WATER ELEVATION                            | 3070.00 FT  |
| BOTTOM OF POND ELEVATION                        | 3055.85 FT  |
| BOTTOM OF SUMP ELEVATION                        | 3048.85 FT  |
| TOTAL CONTAINMENT VOLUME                        | 408,600 BBL |
| TOTAL FLUID VOLUME BELOW 3' FREEBOARD ELEVATION | 325,000 BBL |

| RECYCLING CONTAINMENT D                         |             |
|-------------------------------------------------|-------------|
| TOP OF BERM ELEVATION                           | 3073.00 FT  |
| HIGH WATER ELEVATION                            | 3070.00 FT  |
| BOTTOM OF POND ELEVATION                        | 3055.85 FT  |
| BOTTOM OF SUMP ELEVATION                        | 3048.85 FT  |
| TOTAL CONTAINMENT VOLUME                        | 406,600 BBL |
| TOTAL FLUID VOLUME BELOW 3' FREEBOARD ELEVATION | 325,000 BBL |

| RECYCLING CONTAINMENT G                         |             |
|-------------------------------------------------|-------------|
| TOP OF BERM ELEVATION                           | 3066.00 FT  |
| HIGH WATER ELEVATION                            | 3063.00 FT  |
| BOTTOM OF POND ELEVATION                        | 3048.85 FT  |
| BOTTOM OF SUMP ELEVATION                        | 3041.85 FT  |
| TOTAL CONTAINMENT VOLUME                        | 406,600 BBL |
| TOTAL FLUID VOLUME BELOW 3' FREEBOARD ELEVATION | 325,000 BBL |

| RECYCLING CONTAINMENT H                         |             |
|-------------------------------------------------|-------------|
| TOP OF BERM ELEVATION                           | 3066.00 FT  |
| HIGH WATER ELEVATION                            | 3063.00 FT  |
| BOTTOM OF POND ELEVATION                        | 3048.85 FT  |
| BOTTOM OF SUMP ELEVATION                        | 3041.85 FT  |
| TOTAL CONTAINMENT VOLUME                        | 406,600 BBL |
| TOTAL FLUID VOLUME BELOW 3' FREEBOARD ELEVATION | 325,000 BBL |



**PETTIGREW**  
& ASSOCIATES PA

**ENGINEERING | SURVEYING | TESTING**  
**DEFINING QUALITY SINCE 1965**

100 E. Navajo Drive Suite 100 Hobbs New Mexico  
88240  
T 575 393 9827 F 575 393 1543  
Pettigrew.us



|                   |                           |
|-------------------|---------------------------|
| PROJECT ENGINEER: | Jeremy E. Baker, PE       |
| PROJECT DESIGNER: | Teodoro Cano-Mota, EI III |
| DRAWN BY:         | TCM                       |

| LEGEND |                             |
|--------|-----------------------------|
|        | TEMPORARY BARBED FENCE      |
|        | EXIST, GRADE 1.0' CONTOUR   |
|        | EXIST, GRADE 5.0' CONTOUR   |
|        | FINISHED GRADE 5.0' CONTOUR |
|        | FINISHED GRADE 1.0' CONTOUR |
|        | DRIVING SURFACE             |
|        | 3' FREEBOARD DEPTH          |
|        | CONTAINMENT FENCE           |
|        | ANCHOR TRENCH               |
|        | DITCH FLOWLINE              |
|        | PERMANENT CHAINLINK FENCE   |

[illegible]

# SITE GRADING PLAN AND GENERAL NOTES

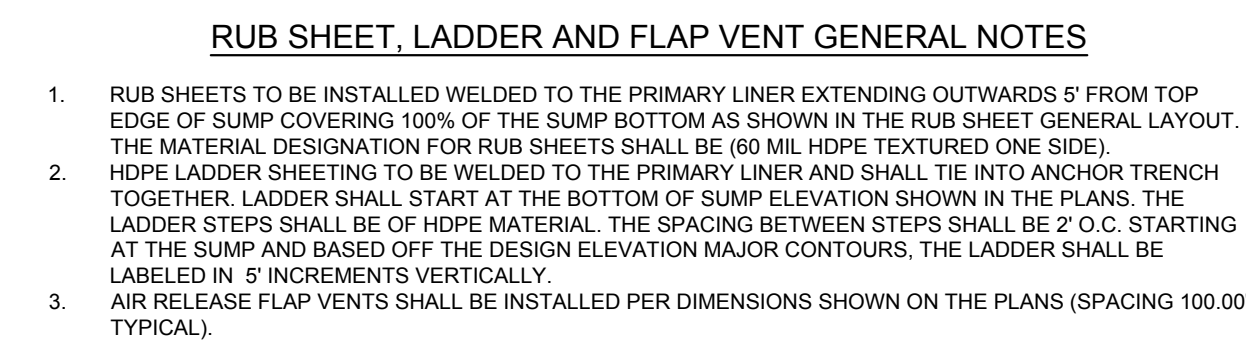
CORRAL FLY  
RECYCLING  
CONTAINMENT

OXY U.S.A. INC.

PROJECT NUMBER: 2017.1164

SHEET: CS-104





- 1 INSTALL AIR RELEASE VENTS PER DETAIL 5, SHEET CS-502
- 2 INSTALL HDPE LADDER PER DETAIL 2, SHEET CS-502
- 3 INSTALL RUB SHEETS PER DETAILS 3 & 6, SHEET CS-502
- 4 INSTALL RUB SHEETS PER DETAILS 1 & 4, SHEET CS-502

| RECYCLING CONTAINMENTS C, D, G & H          |                       |
|---------------------------------------------|-----------------------|
| PRIMARY LINER PER CONTAINMENT               | 166000 SQ. FT.        |
| SECONDARY LINER PER CONTAINMENT             | 166000 SQ. FT.        |
| HYPERNET PER CONTAINMENT                    | 166000 SQ. FT.        |
| GEOTEXTILE PER CONTAINMENT                  | 166000 SQ. FT.        |
| TOTAL AREA FOR C, D, G & H                  | <b>664000 SQ. FT.</b> |
| TOTAL AREA FOR C, D, G & H (5% CONTINGENCY) | 697200 SQ. FT.        |

| GRAND TOTAL FOR ALL 8 PONDS |         |         |
|-----------------------------|---------|---------|
| PRIMARY LINER               | 1328000 | SQ. FT. |
| SECONDARY LINER             | 1328000 | SQ. FT. |
| HYPERNET                    | 1328000 | SQ. FT. |
| GEOTEXTILE                  | 1328000 | SQ. FT. |
| RUB SHEETING                | 103352  | SQ. FT. |
| NOTE: (0% CONTINGENCY)      |         |         |

1. LINER QUANTITIES WERE CALCULATED TO THE EDGE OF THE ANCHOR TRENCH AS SHOWN IN DETAIL 5, SHEET CS-501. QUANTITIES DO NOT INCLUDE MATERIAL INSIDE THE ANCHOR TRENCH.
2. ALLOW 450 SQ. FT. ADDITIONAL QUANTITY FOR GEOTEXTILE FOR WRAPPING THE LEAK DETECTION PIPE.
3. OXY U.S.A. WILL PROVIDE GEOSYNTHETICS, CONTRACTOR SHALL PROVIDE GSE WELDING ROD.

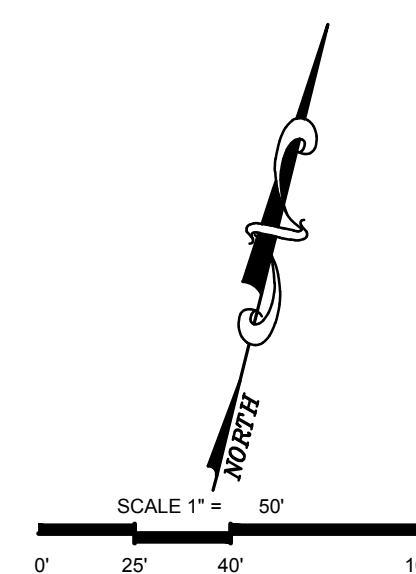


|                                                                                     |                             |
|-------------------------------------------------------------------------------------|-----------------------------|
|  | TEMPORARY BARBED FENCE      |
|  | EXIST. GRADE 1.0' CONTOUR   |
|  | EXIST. GRADE 5.0' CONTOUR   |
|  | FINISHED GRADE 5.0' CONTOUR |
|  | FINISHED GRADE 1.0' CONTOUR |
|  | DRIVING SURFACE             |
|  | 3' FREEBOARD DEPTH          |
|  | CONTAINMENT FENCE           |
|  | ANCHOR TRENCH               |
|  | DITCH FLOWLINE              |
|  | PERMANENT CHAINLINK FENCE   |
|  | RUB SHEET, TEXTURED         |

[illegible]

OXY U.S.A. INC.

SHEET: CS-106

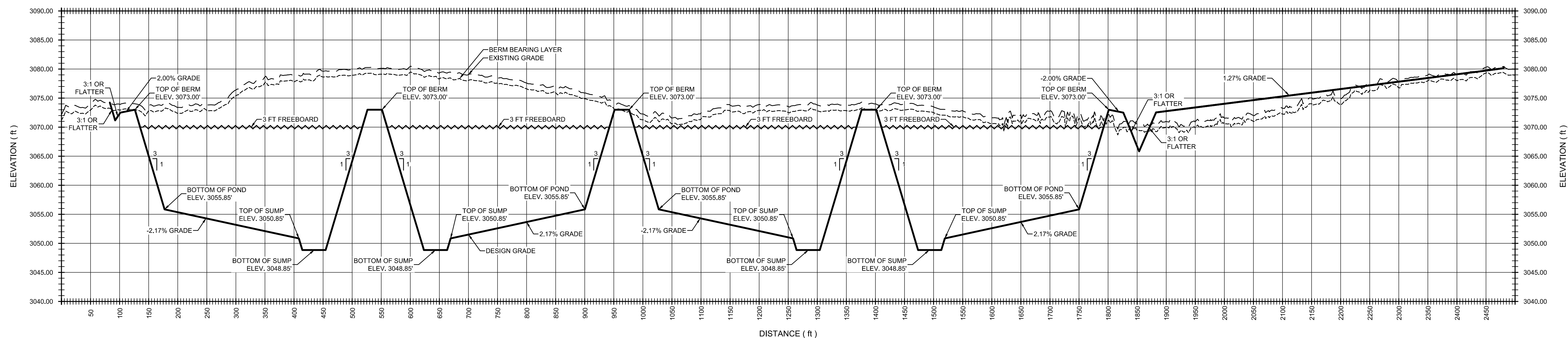




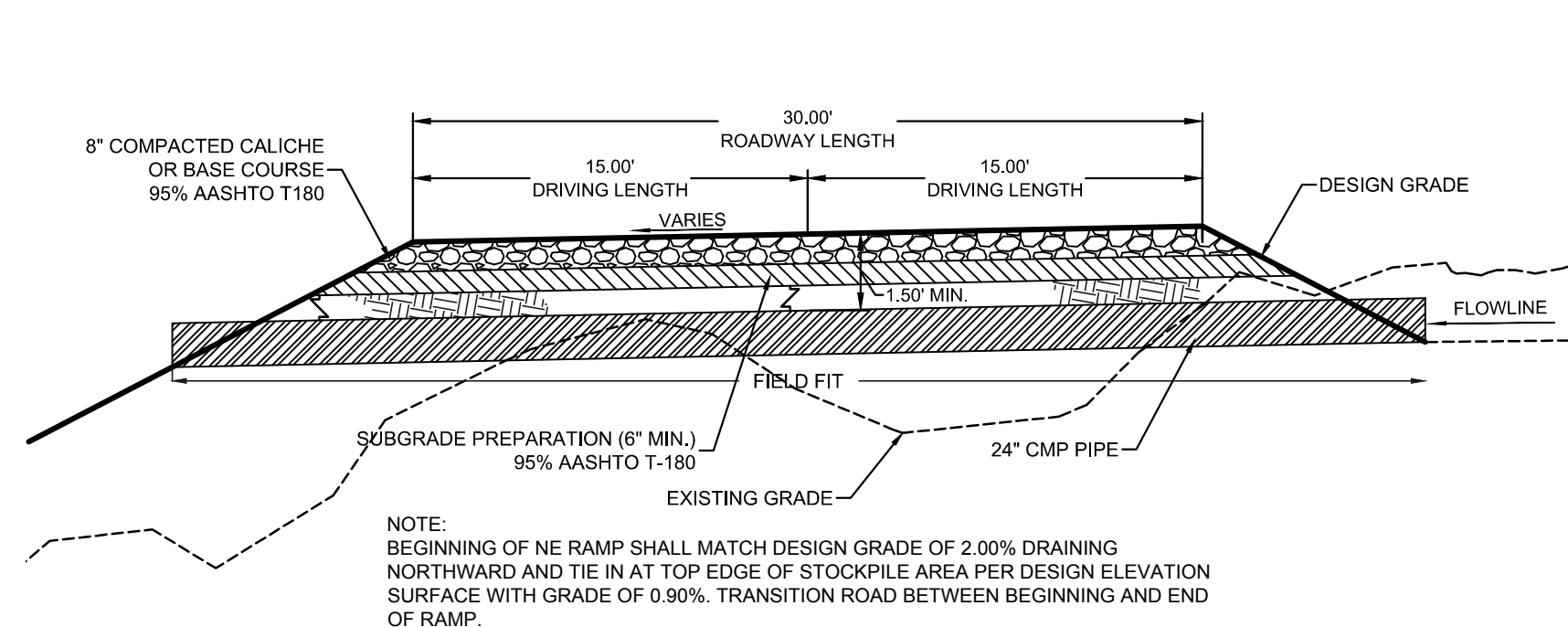
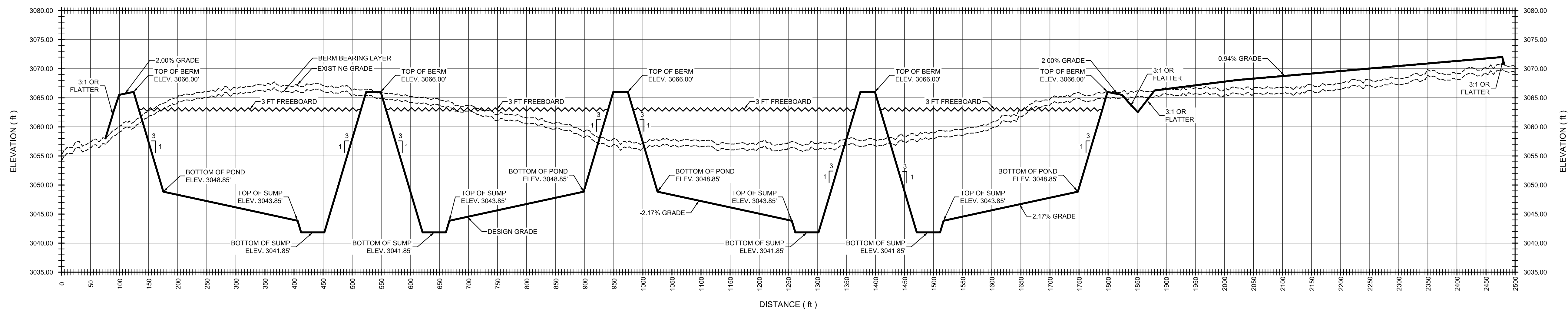
12/20/2017

PROJECT ENGINEER: Jeremy E. Baker, P.E.  
PROJECT DESIGNER: Teodoro Cano-Mota, EI III  
DRAWN BY: TCM

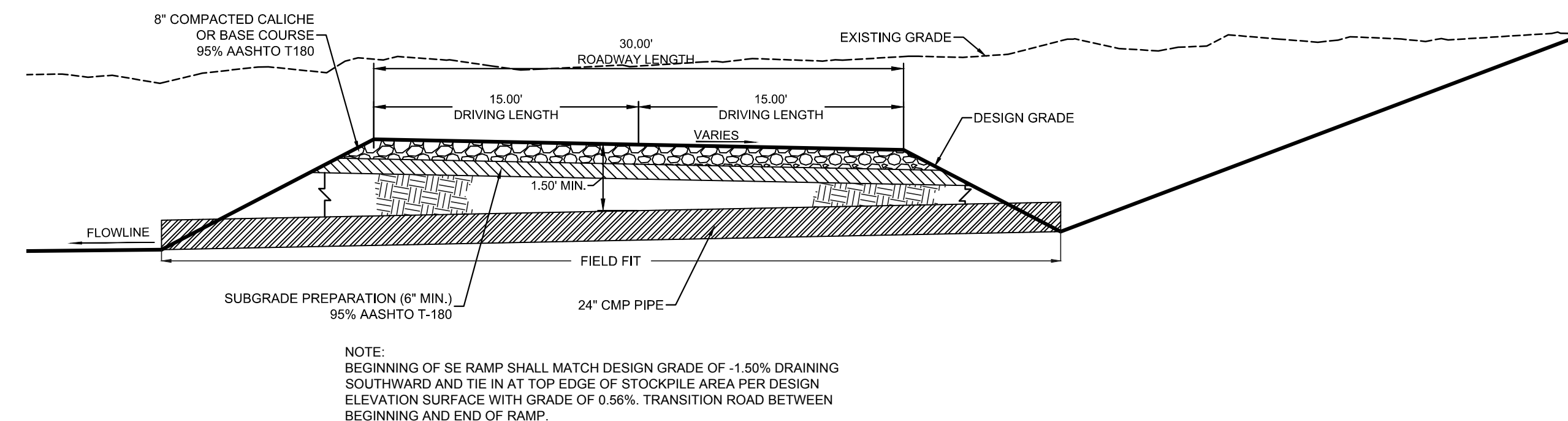
### SECTION A - A'



### SECTION B - B'



**1** NORTHEAST RAMP  
SECTION DETAIL  
N.T.S.



**2** SOUTHEAST RAMP  
SECTION DETAIL  
N.T.S.

SCALE 1" = 100'  
0' 50' 100' 200'

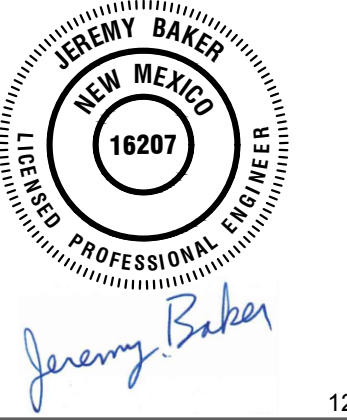
### SECTIONS

CORRAL FLY  
RECYCLING  
CONTANIMENT

OXY U.S.A. INC.

PROJECT NUMBER:  
2017.1164

SHEET:  
CS-301

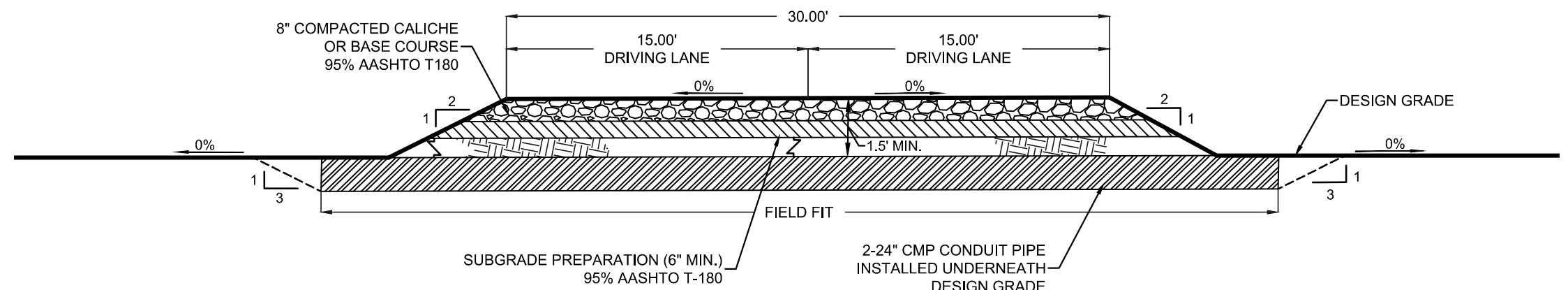
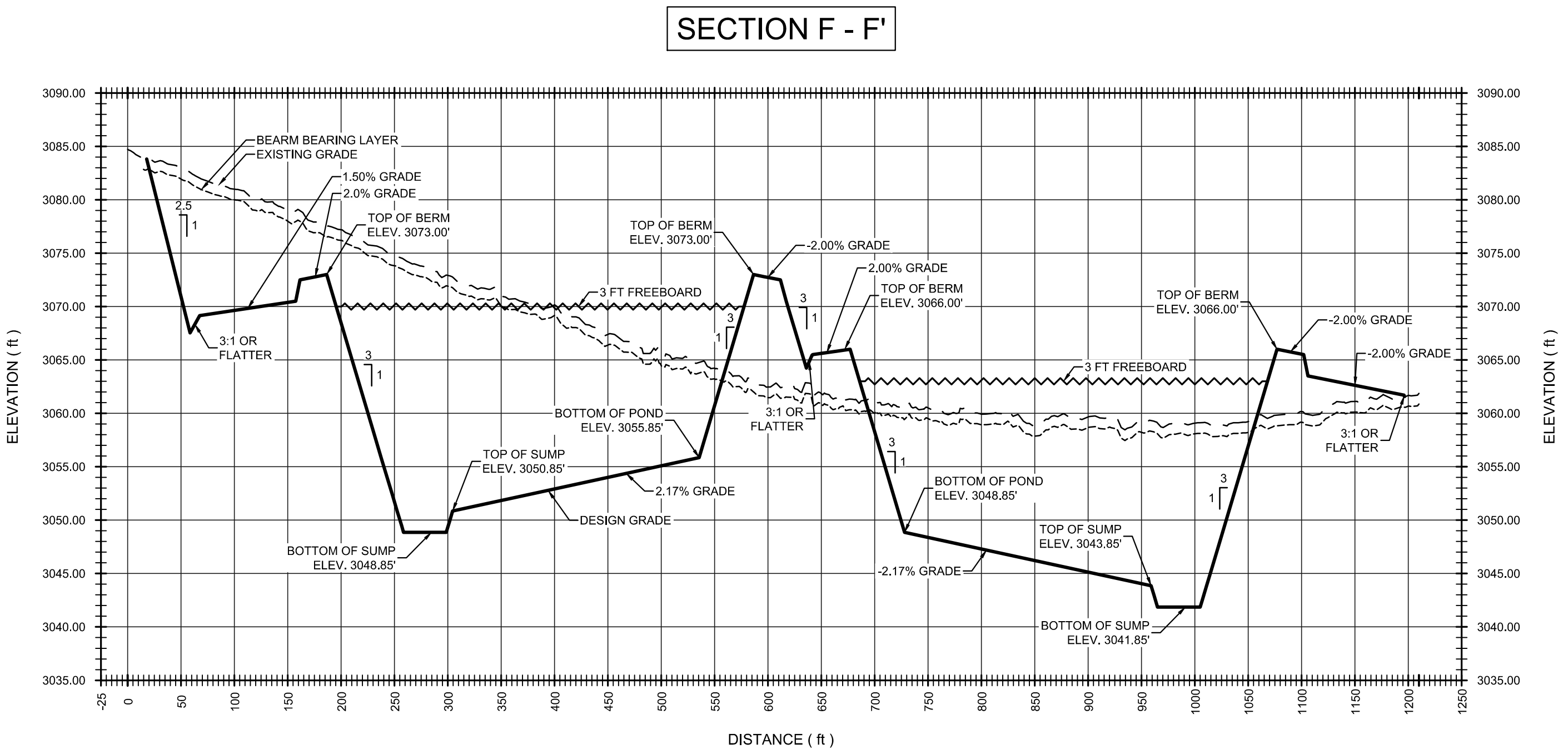
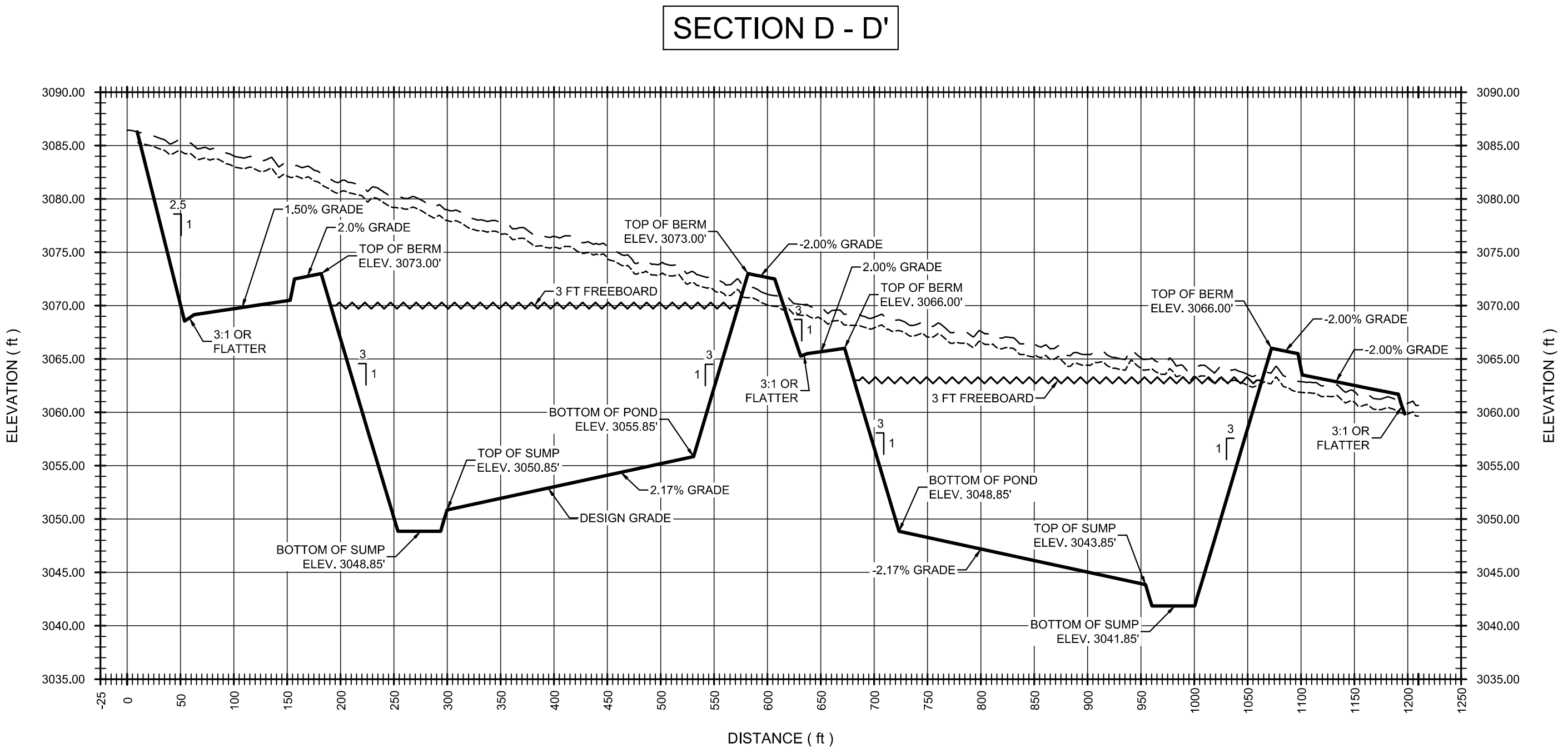


## SECTIONS

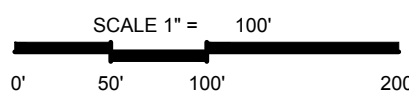
OXY U.S.A. INC.

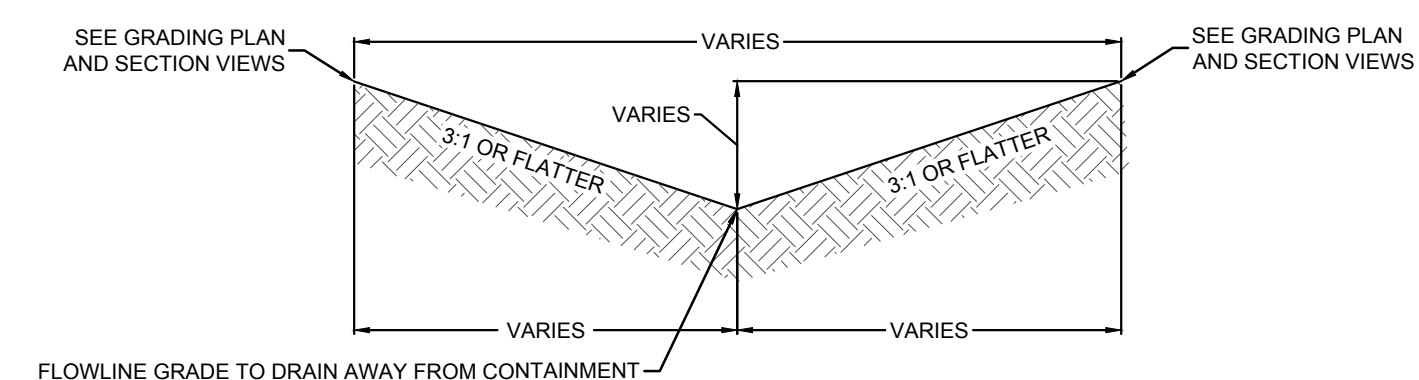
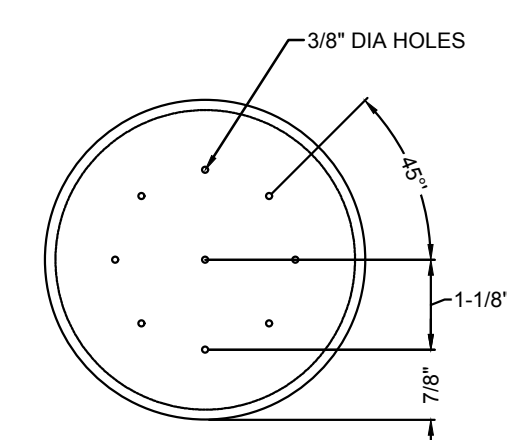
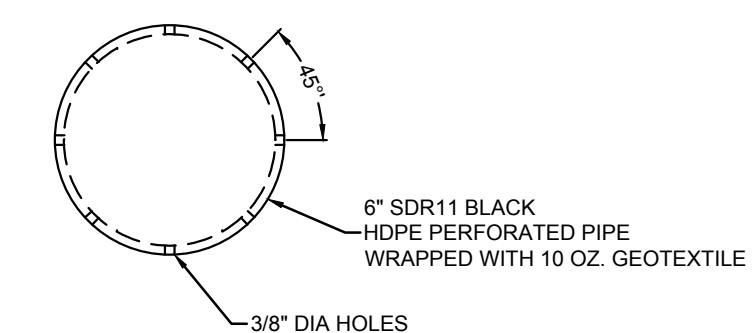
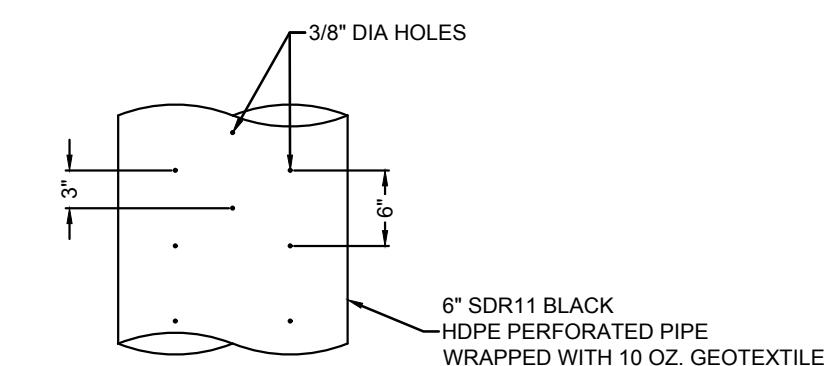
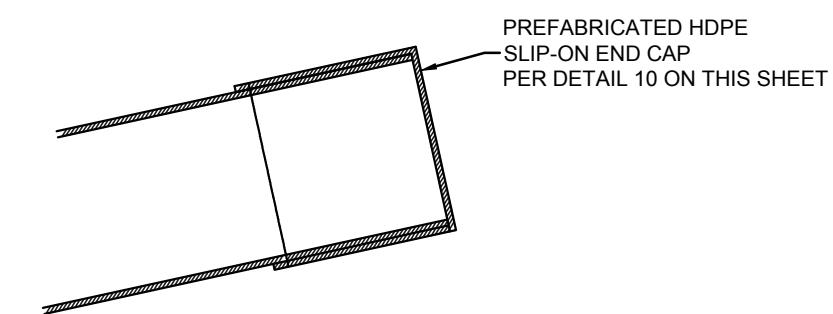
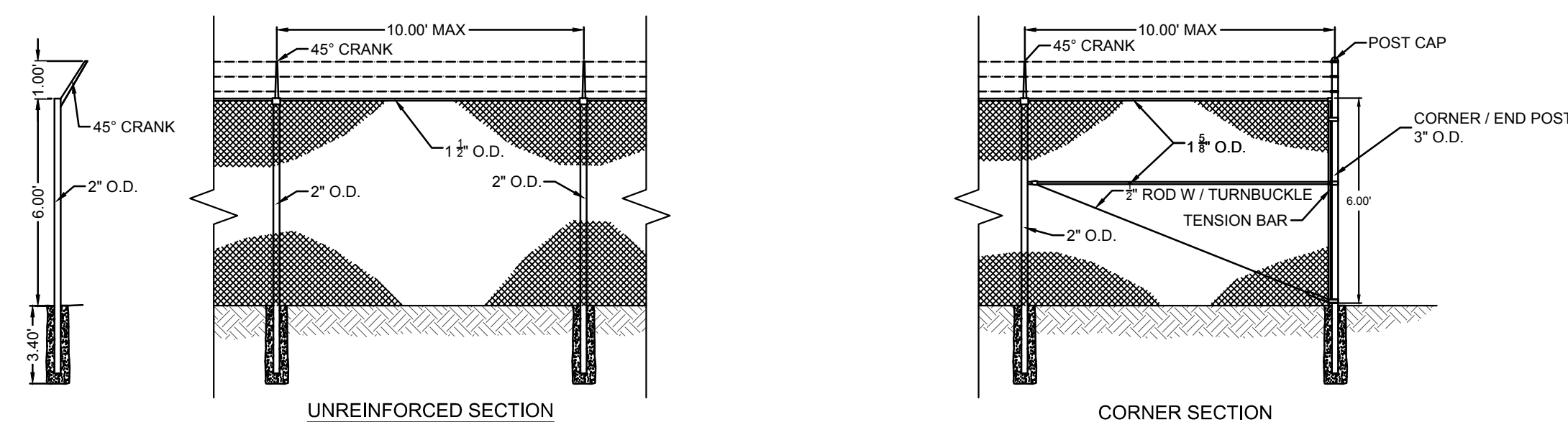
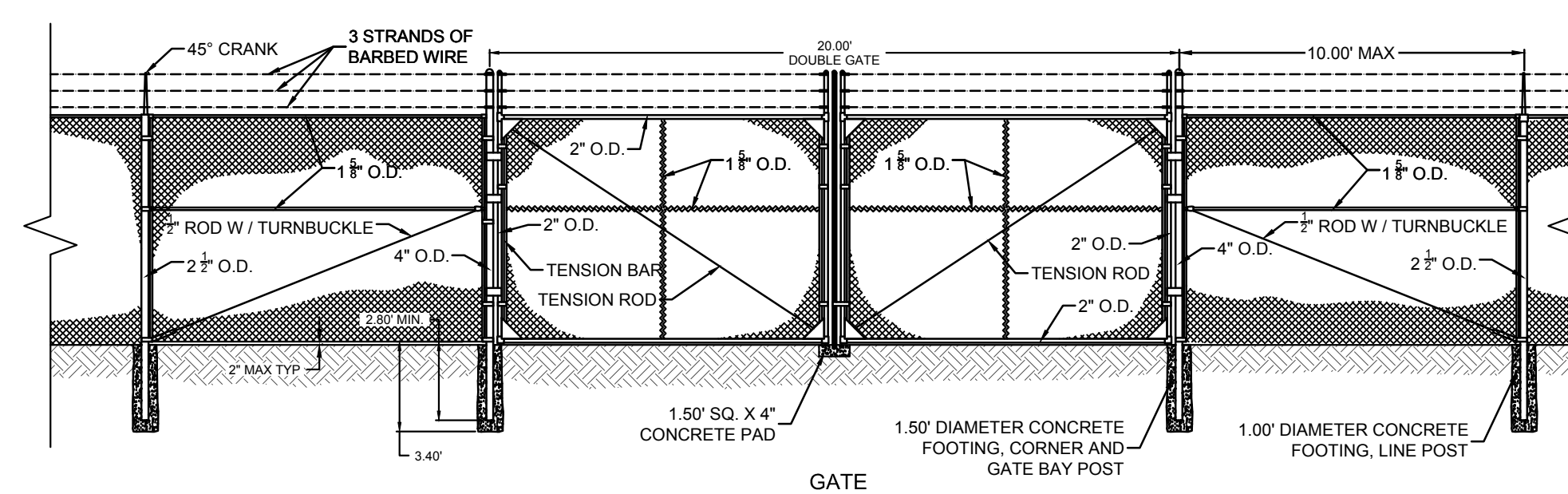
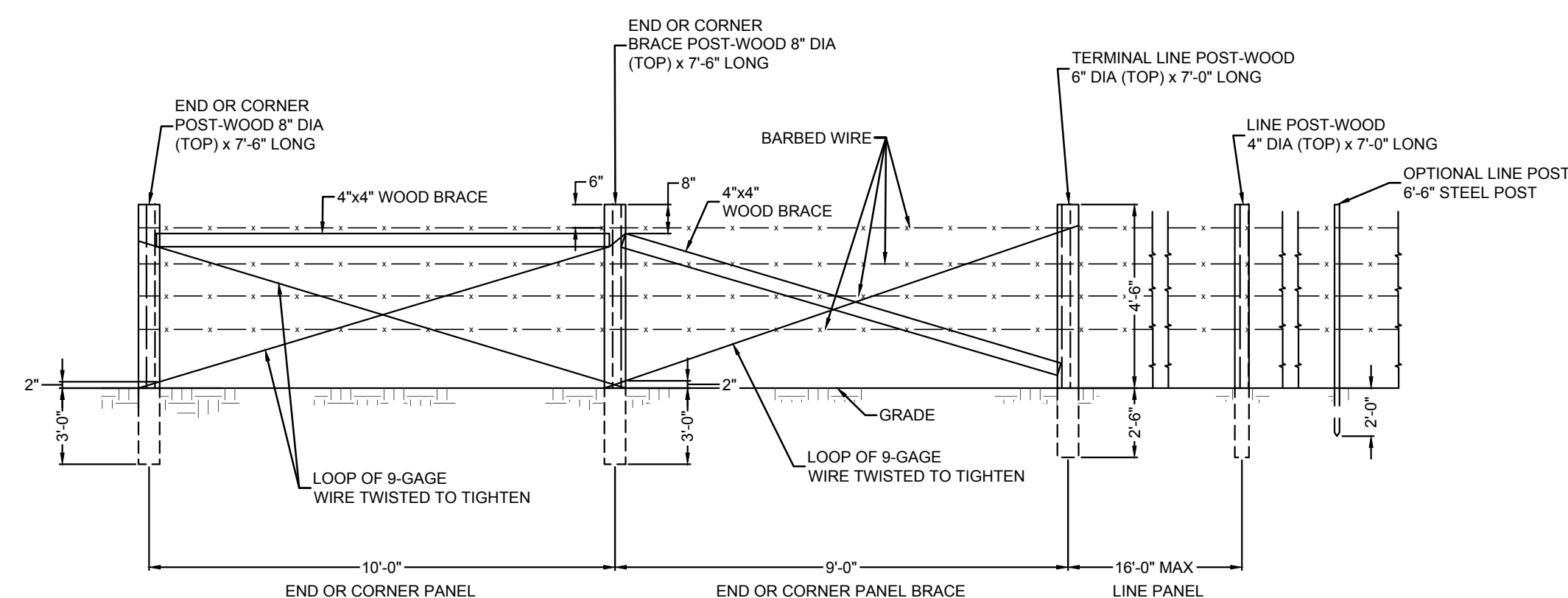
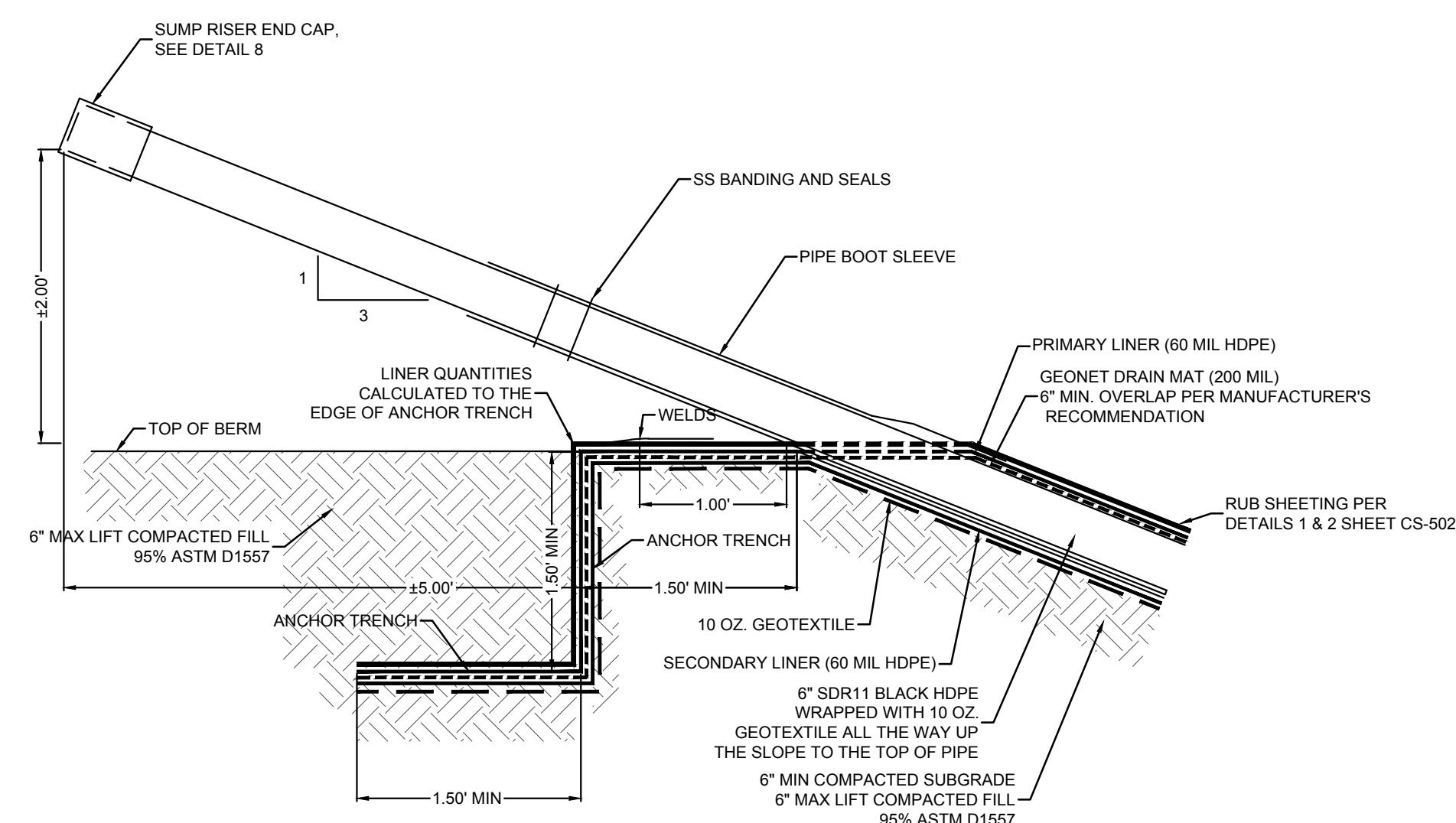
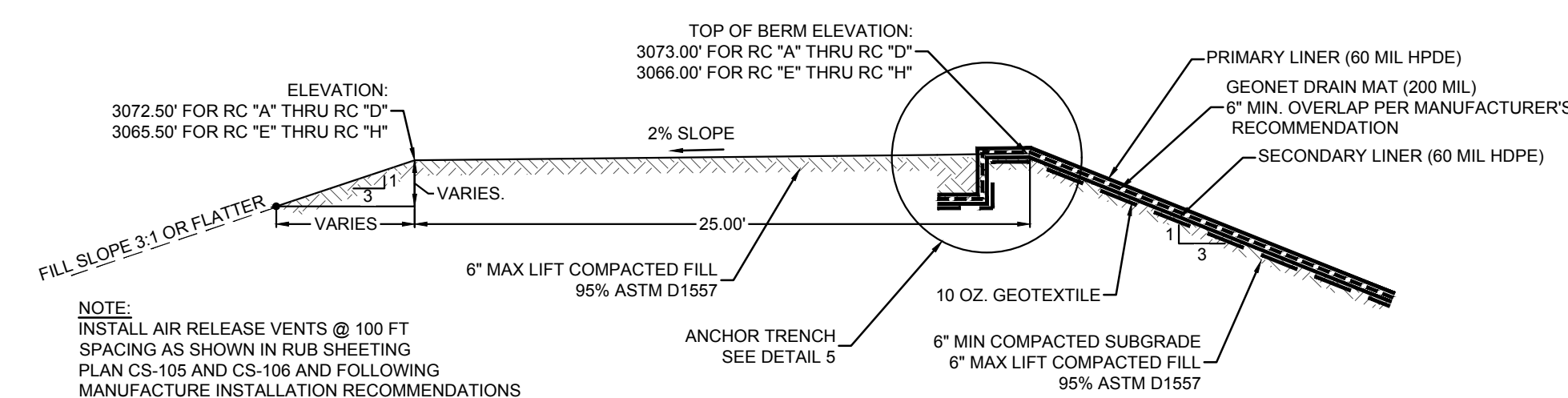
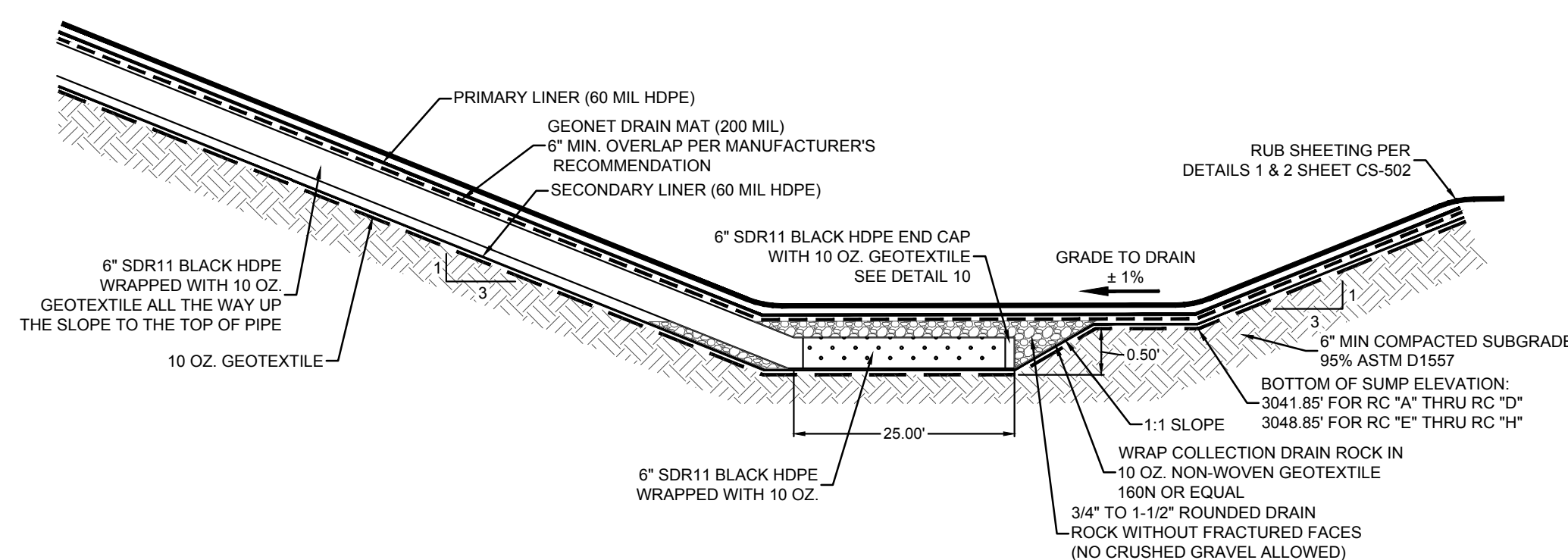
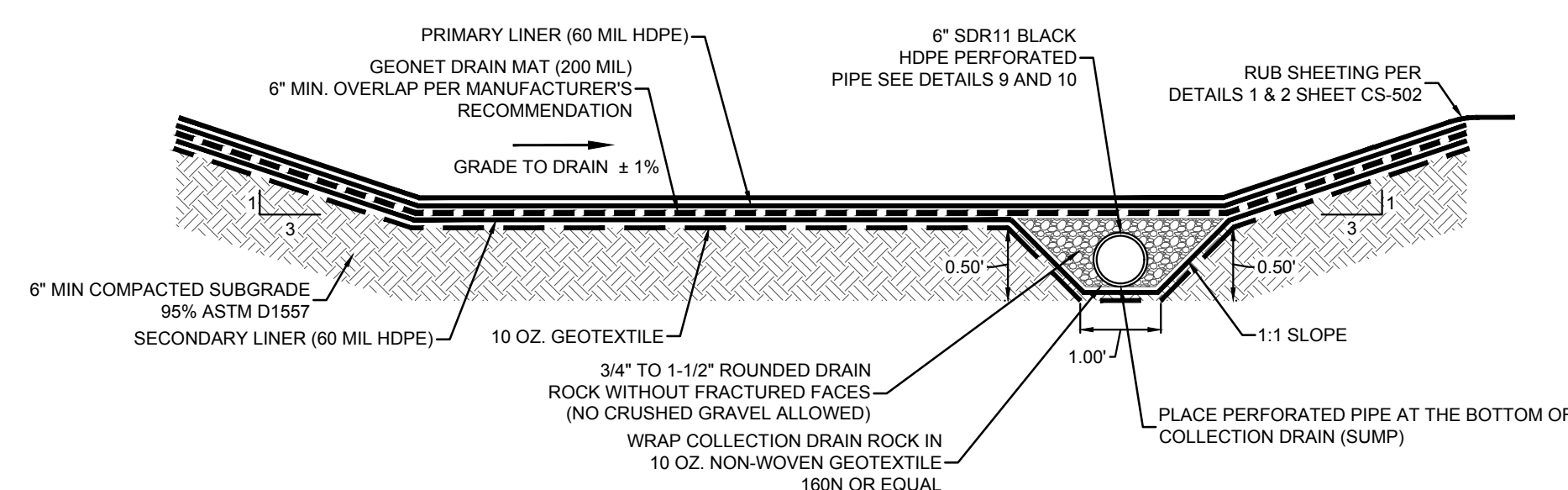
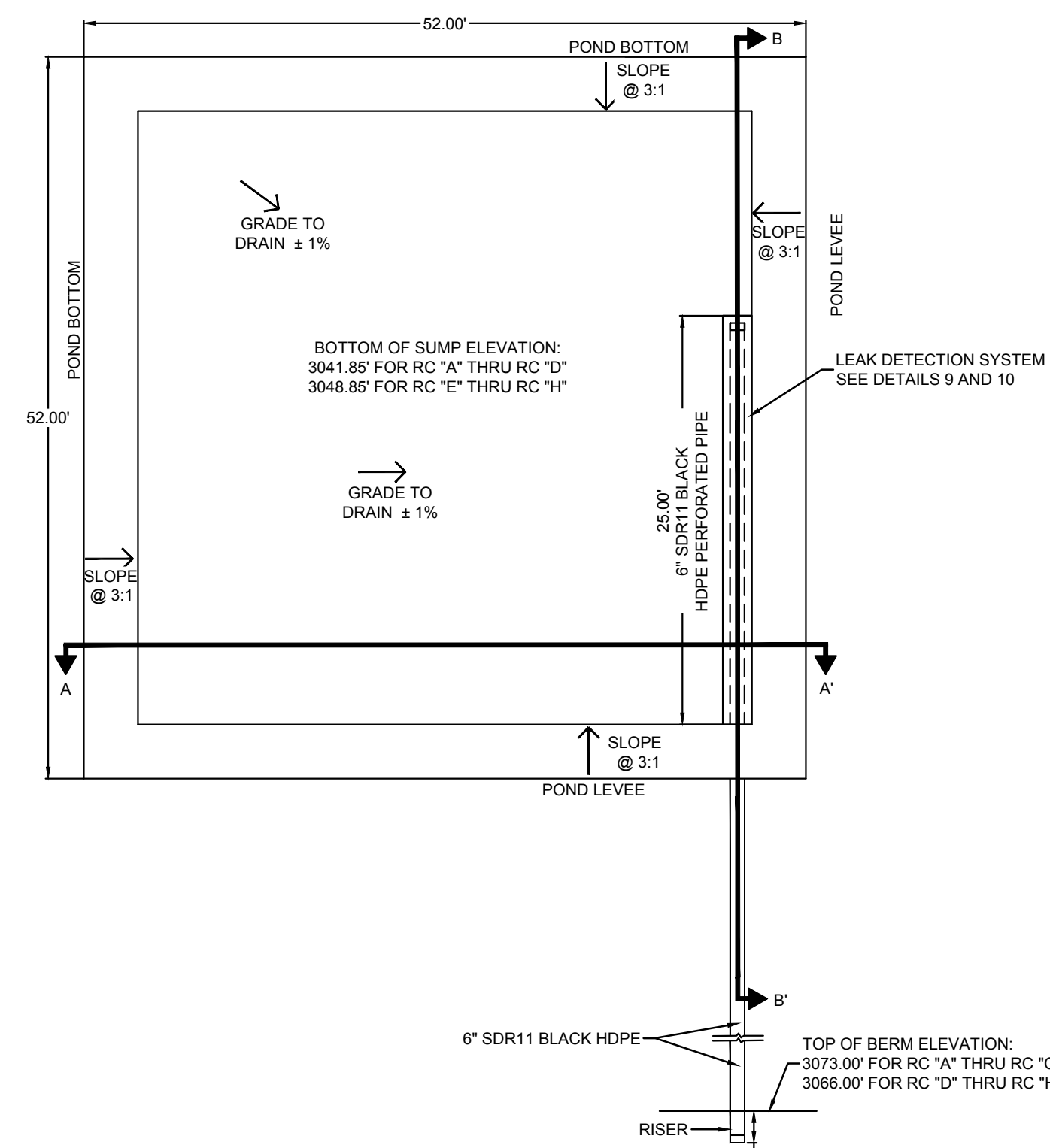
SHEET:

CS-302



**1** SUMPS ACCESS RAMP  
SECTION DETAIL N.T.S.



[illegible]

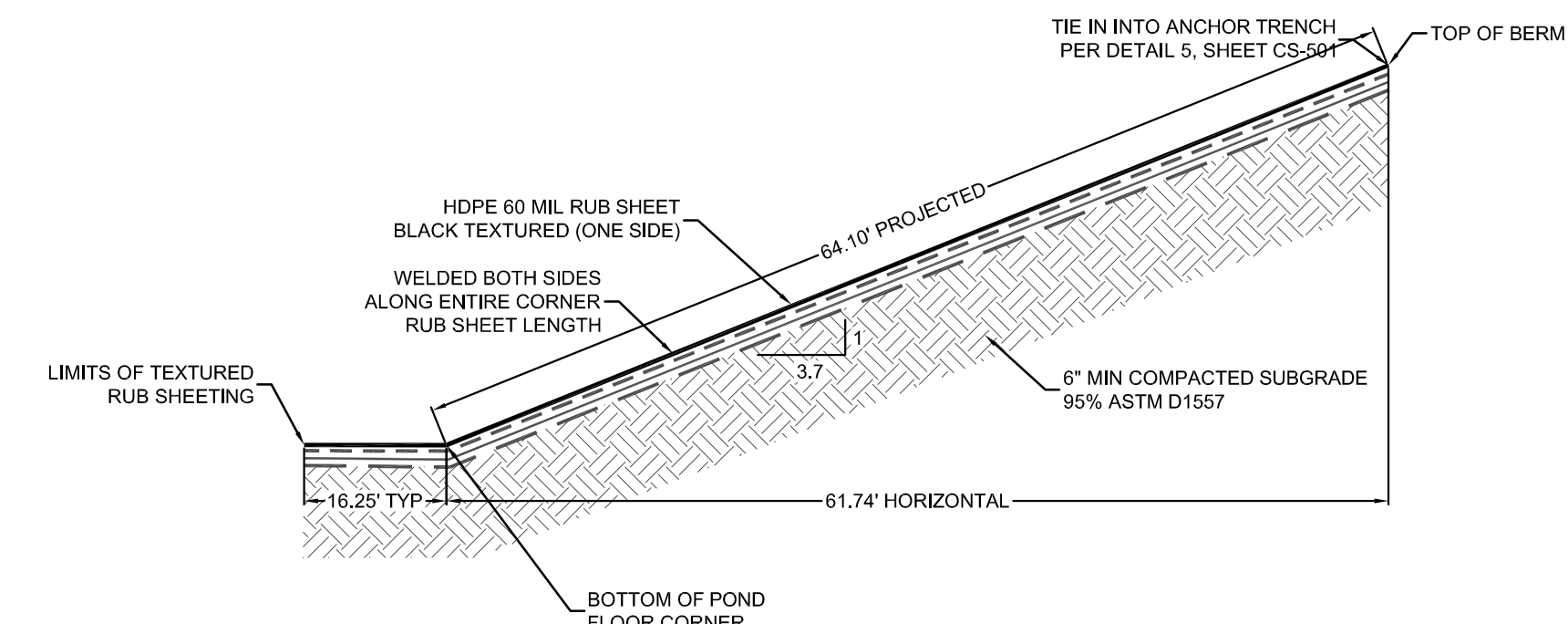
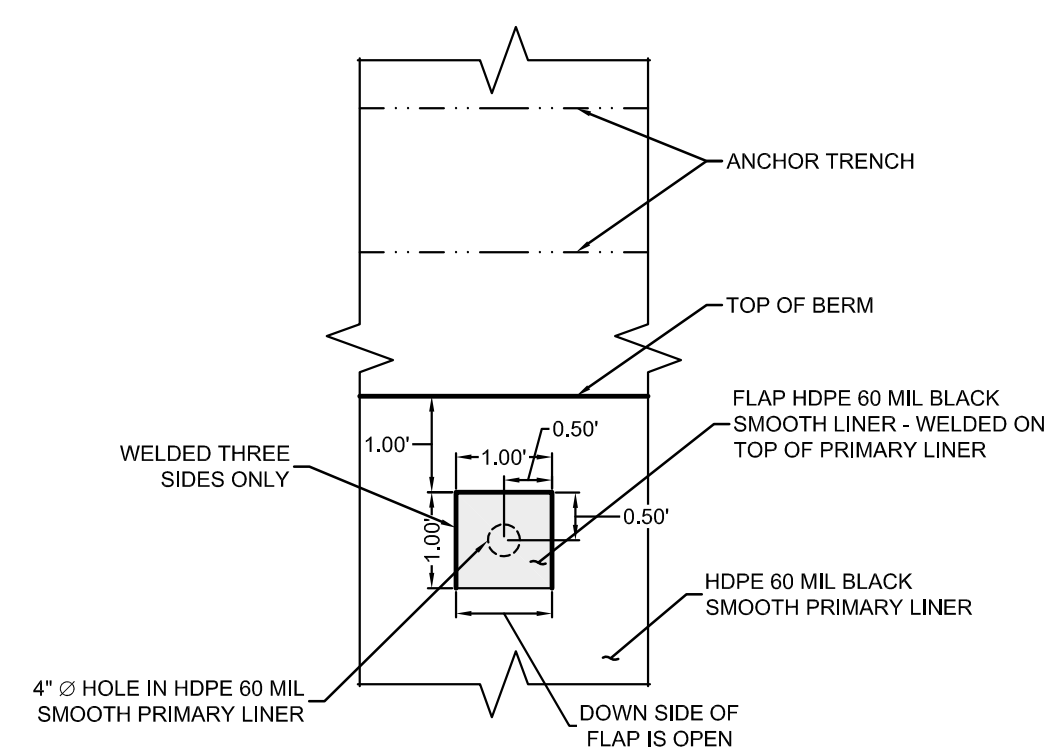
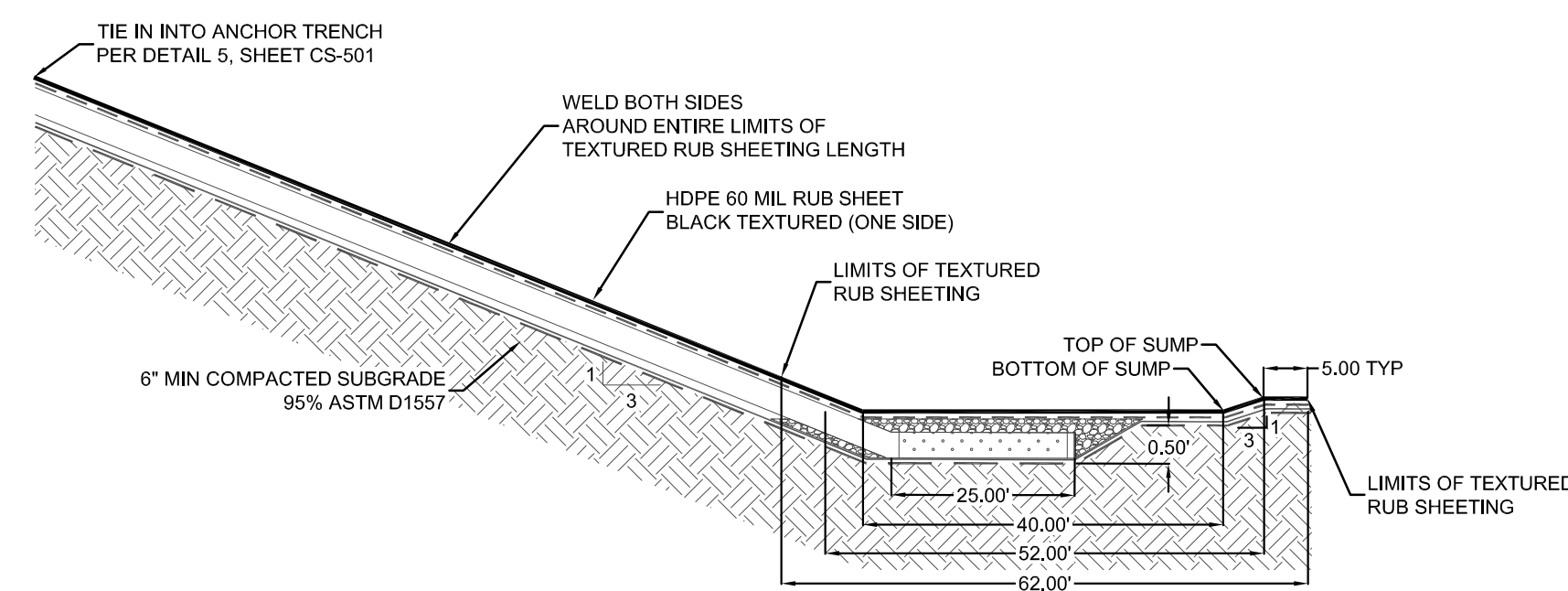
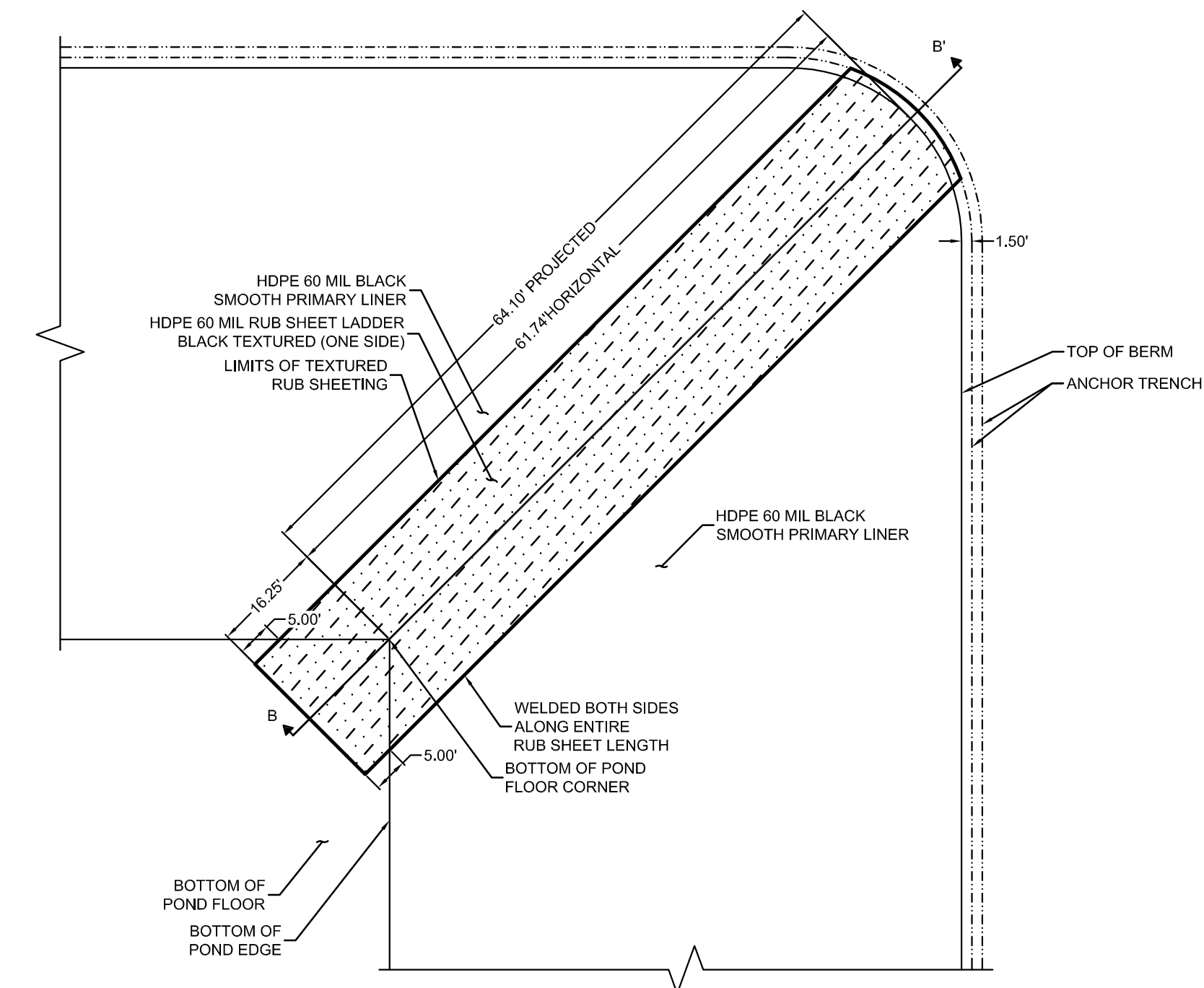
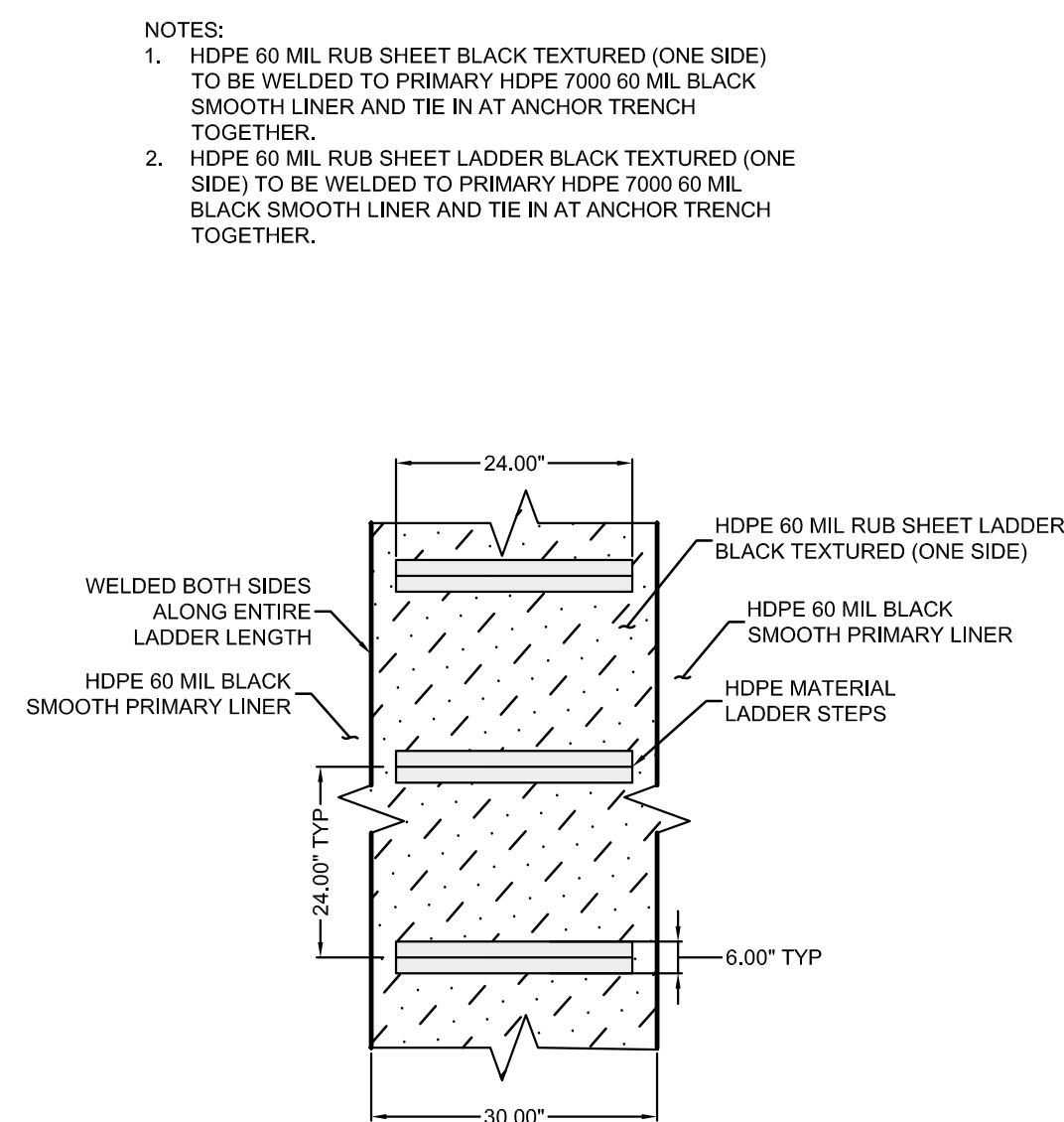
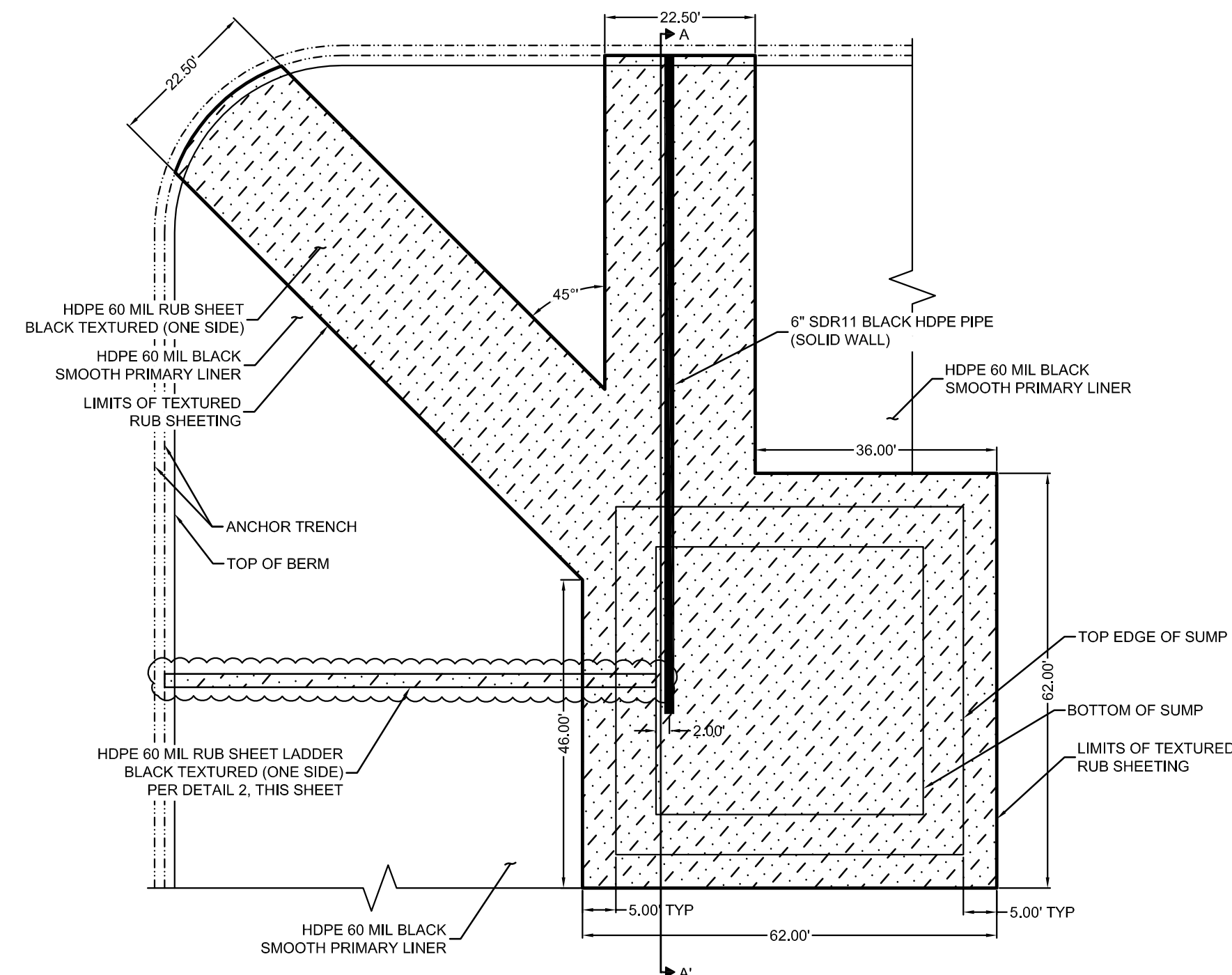
## DETAILS

CORRAL FLY  
RECYCLING  
CONTAINMENT

OXY U.S.A. INC.

PROJECT NUMBER: 2017.1129

SHEET: CS-501



|                   |                           |
|-------------------|---------------------------|
| PROJECT ENGINEER: | Jeremy E. Baker, PE       |
| PROJECT DESIGNER: | Teodoro Cano-Mota, EI III |
| DRAWN BY:         | TCM                       |

[illegible]

## DETAILS

CORRAL FLY  
RECYCLING  
CONTAINMENT

OXY U.S.A. INC.

PROJECT NUMBER:  
2017.1129

SHEET:

CS-502



2/20/2017

[illegible]

CS-503

**1 RIP RAP SLOPE  
EROSION PROTECTON**

SCALE: N.T.S.