



**CHARLOTTE DOUGLAS INTERNATIONAL AIRPORT  
CHARLOTTE, NORTH CAROLINA**

**ADDENDUM NO. 2**

**NORTH END AROUND TAXIWAY (NEAT)  
OVERLOOK RELOCATION**

**CLT PROJECT NO. AVIA 23-50  
ADDENDUM DATE: MAY 25, 2023**

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This Addendum is hereby made a part of the contract documents and specifications of the above referenced project. All other requirements of the original plans and specification shall remain in effect in their respective order. Acknowledge receipt of this addendum by initialing next to its number on the "Execution of Bid" page of your Bid.

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**Addendum No. 2 Includes the Following:**

- Bidder Questions and Responses (as of 05.22.2023 at 5:00PM)
    - Responses are in the color **red**.
  - Project Manual (Front End) Revisions
  - Technical Specification Revisions
  - Line Item Revisions
  - Plan Sheet Revisions
  - Revised Section III. Bid Form and Supplements
    - The revised bid form reflects the adjustments made to the line times
    - **NOTE:** Bid submissions must have the revised bid form included in this Addendum No. 2.
  - Geotechnical Report
  - **END OF ADDENDUM NO. 2**
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## **BIDDER QUESTIONS AND RESPONSES**

1. Can you clarify if this will be a unit price or lump sum contract?  
If unit sum, what will happen if actual quantities are higher or lower than unit price amounts on bid form?  
**This project is a unit price contract with each line item being paid per the project specifications. See Section 40-02 Alteration of work and quantities in the Project Manual.**
2. Will the bid date be extended? It currently falls during a holiday week while many people may be out of the office.  
**The bid date will not be extended.**
3. Can you please confirm that this is an unclassified site? If unclassified, what is the reasoning for unit price #4 for 250 CY of undercutting?  
**Unclassified excavation is part of the scope of work. Undercut is a contingency item if encountered.**
4. Can soil borings be provided for this site?  
**The 2021 geotechnical report was provided for information only as part of Addendum 1. An additional 2023 geotechnical report is provided for information only as part of Addendum 2. Please note this report was prepared prior to the placement of fill by others.**
5. Are exports from the site to be hauled offsite, or is there space on CDIA property for these to be hauled to?  
**Suitable material may be stored on CDIA property at a location to be determined.**
6. Elevations on sheet A-2 indicate 8" split face block. The wall sections on sheet A-3 indicate 4" split face block. Please confirm what this wall section should be.  
**All exterior CMU walls are 4" split face up to 8'-0" and 4" smooth face up to 10'-0" as shown on wall sections 1 and 2 on sheet A-3.**
7. Please confirm if the following meters will be provided by the owner?  
Irrigation Water Service Meter  
Domestic Water Meter  
Fire Line Service with Detector Meter  
**Per CLTWater, CLTWater will provide the irrigation meter and the detector meter for the fire line. The contractors will need to provide the domestic meter.**
8. Based on the response to RFI 6 in Addendum 1, with the volume of unclassified excavation being reduced drastically, will the unit price quantity be reduced accordingly?  
**Addendum 1 did not adjust the volume of unclassified excavation. This is a Unit Price Contract, see Section 40-02 Alteration of work and quantities in the Project Manual.**
9. We are trying to wrap our minds around the scope of work required with transporting the F-14 to the site. Although we understand this work is to be performed under the LS Allowance, we still want to understand the specifics of the work so we may properly evaluate the risk associated with this scope. Can you provide information as to how the plane will be disassembled prior to our transportation of the plane (ie will

the wings be removed, how wide will the plane be, are we responsible to load the plane at its facility, where approximately is the facility located, how heavy is the plane)? Also will we be required to re-assemble the plane once onsite, and if so, will the re-assembly require a specialized airplane mechanic that we are to provide?

The contractor will be responsible for coordination with the Airport's designated aircraft handling contractor to facilitate the delivery and installation of the aircraft from a location within 75 miles of CLT Airport. Payment for work within this pay item to be paid in accordance with NCDOT Force Account 109-3 and the contract change order specifications for markup. Submittals with documentation for the costs associated will be required for agreement with CLT. This designated handling contractor would be paid using the Aircraft Display Allowance line item and covers all work associated with the disassembly, loading, unloading, reassembly and any other costs associated with having the aircraft delivered and setup at the Aircraft Display area as designated on the plans. For reference the approximate empty weight of the aircraft is 43,700 lbs.

10. This specification section 22 42 33 Wash Fountains is missing from project documents. Can it be sent with the next addendum?

Specification Section 22 42 33 Wash Fountains is included in Addendum 2.

11. The quantity for unit price 134 is 120 Acres. This is larger than the overall site, what should this unit be?

The quantity for Temporary Mulching is corrected and a line item is added for Sediment Control Stone with Addendum No 2.

12. The notes on the drawings (AM-3 & AM-4) state "BENCH TYPE 1 AND BENCH TYPE 2 ARE "CONTRACTOR DELEGATE DESIGN". SEE CONTRACT SPECIAL PROVISIONS". Does the design have to match the cross section profile shown on details 2, 4, & 5 on sheet AM-4 or will a similar design achieving the same result be acceptable? Is the hollow void shown on details 2, 4, & 5 on sheet AM-4 required or can it be solid? Was there a specified vendor who the owner/engineer work when designing this scope?

The cross section profiles for Bench Type 1 and Type 2 are to match the profiles shown on Sheet AM-4, Details 2, 4 and 5. Dimensions of profiles for Bench Type 1 and Type 2 are shown on Sheet AM-4, Detail 5 "Precast Conc. Bench Type 1 and Bench Type 2 Dimensioned Section". The exterior dimensions shown on Detail 5 control the exterior form and shape of the benches. Reinforcing steel, concrete mix design, and using voids or no voids (solid concrete) are a part of the "Contractor Delegated Design". There is not a specified or a recommended vendor for the benches. Benches were discussed and reviewed with the Bret Lynch, Carolina Representative, Wausau Tile. His phone is 336-260-0587. Please review on Sheet AM-3, Detail 1 and 2 the following note "All Sides of Exposed Benches to Be Solid (No Exposed Reveals on Sides).

13. There is an existing dump site at the end of the existing Airport Overlook Road. Will this be cleared in any way before our work begins or is the contractor responsible for moving gravel, concrete, etc. in this location?

The majority of the Overlook construction limits have been a controlled fill site from a

previous project. The contractor will be responsible for all work as noted in the plans and specs.

14. Please clarify what is being supplied and installed by JCI in the allowance pay item under the site security?

Refer to the Technical Specification Section for Communication Systems – Appendix A page 615 for the list of items to be provided by JCI Allowance No. 4

15. Which pay item should be used to pay for the installation of the Duke supplied pull boxes?

The Duke supplied boxes are incidental to the payment for conduit.

16. What size are the Duke supplied pull boxes?

The size of the Duke supplied pull boxes are anticipated to be 13"x24"x18".

17. What does the Electrical Lump Sum item include? The bullet points under the Electrical pay item on page 00 75 00 – 83 appear to reference water specs.

See the Electrical section issued as part of Addendum 2.

18. Drawing E-5 fixture schedule references replacing bulbs. Can you please explain what this is referring to?

The note on E-5 refers to the replacement of existing electrical fixture with LED fixtures in the Tail Rudder sign.

19. The "Base Bid" amount is indicated to include unit prices + Allowances. The "ALTERNATES" amount is indicated to include Base Bid + Allowances + Alternates" Since the base bid is inclusive of allowances, should the Alternates amount be revised to be Base Bid + Alternates ?

The written sum entered under ALTERNATES is to include the Unit Price Total Amount of the Base Bid and Allowances, as well as the Unit Price Total Amount of the Additive Bid Alternates.

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### **PROJECT MANUAL (FRONT END) REVISIONS**

- Remove and replace the Table of Contents in the Project Manual with the attached revision.
- Remove and replace pages BID-22 through BID-28 from the Project Manual (Front End) with the attached revision.
- The attached Subsection G. DAVIS-BACON WAGE DETERMINATION is added to Section III. BID FORM AND SUPPLEMENTS immediately following Subsection F.

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### **TECHNICAL SPECIFICATION REVISIONS**

- Remove and replace the **Electrical** section shown on pages 00 75 00 – 82 and 00 75



- 00 – 83 of the Technical Specifications with the attached revision.
- Add the attached **22 42 33 Wash Fountains** to the Technical Specifications

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### **LINE ITEM REVISIONS**

**NOTE:** Bid submissions must include the revised Bid Form and Supplements, attached within this Addendum No. 2.

The following Line Items have been modified to read as follows:

Line Item	Spec No.	Description	Qty	Unit	Unit Price	Amount
134	1615	TEMPORARY MULCHING	2	ACR		
<b>NEW</b>	1610	SEDIMENT CONTROL STONE	120	TN		

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### **PLAN SHEET REVISIONS**

- **Delete** plan sheet 3A-10 and **Insert** the revised plan sheet 3A-10 attached to this Addendum.
- **Delete** plan sheet 5 and **Insert** the revised plan sheet 5 attached to this Addendum.
- **Delete** plan sheet 3C-1 and **Insert** the revised plan sheet 3C-1 attached to this Addendum.
- **Delete** plan sheet LE-1 and **Insert** the revised plan sheet LE-1 attached to this Addendum.
- **Delete** plan sheet U-4 and **Insert** the revised plan sheet U-4 attached to this Addendum.
- **Delete** plan sheet U-14 and **Insert** the revised plan sheet U-14 attached to this Addendum.
- **Delete** plan sheet X-1 and **Insert** the revised plan sheet X-1 attached to this Addendum.
- **Delete** plan sheet A-2 and **Insert** the revised plan sheet A-2 attached to this Addendum.

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**END OF ADDENDUM NO. 2**

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**A. ITEMIZED BID**

**NEAT OVERLOOK RELOCATION**

Charlotte Douglas International Airport  
Project No.: **AVIA 23-50**

**BASE BID (Unit Price Total Amount + Allowances = BASE BID)**

The undersigned Bidder, having carefully examined the Bidding and Contract Documents, and having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment, permits and services, including all scheduled Allowances, necessary to complete the Work for the above-named project, in accordance with the requirements of the Bidding Documents, for the sum of: \_\_\_\_\_ Dollars (\$\_\_\_\_\_)

**ALTERNATES (Base Bid + Allowances + Alternate(add/deduct) = ALTERNATES)**

The undersigned Bidder, having carefully examined the Bidding and Contract Documents, and having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment, permits and services, including all scheduled Allowances and Alternate scope, necessary to complete the Work for the above-named project, in accordance with the requirements of the Bidding Documents, for the sum of: \_\_\_\_\_ Dollars (\$\_\_\_\_\_)

**UNIT PRICES**

Line Item	Spec No.	Description	Qty	Unit	Unit Price	Amount
1	800	MOBILIZATION (5%)	1	LS		
2	200	CLEARING AND GRUBBING	1	LS		
3	200	SUPPLEMENTARY CLEARING AND GRUBBING	1	ACR		
4	225	UNCLASSIFIED EXCAVATION	32500	CY		
5	225	UNDERCUT EXCAVATION	250	CY		
6	235	EMBANKMENT SETTLEMENT GAUGES	8	EA		
7	260	PROOF ROLLING	20	HR		
8	270	GEOTEXTILE FOR SOIL STABILIZATION	6000	SY		
9	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	150	TN		
10	300	FOUNDATION CONDITIONING GEOTEXTILE	500	SY		
11	310	15" RC PIPE CULVERTS, CLASS III	276	LF		
12	310	18" RC PIPE CULVERTS, CLASS III	292	LF		
13	310	24" RC PIPE CULVERTS, CLASS IV	64	LF		
14	310	15" RC PIPE CULVERTS, CLASS IV	60	LF		
15	310	18" RC PIPE CULVERTS, CLASS IV	104	LF		
16	300	6" CLEAN OUT	2	EA		
17	500	FINE GRADING	1	LS		
18	520	AGGREGATE BASE COURSE	9,000	TN		
19	560	SHOULDER BORROW	50	CY		
20	607	INCIDENTAL MILLING	100	SY		
21	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	1,500	TN		

Line Item	Spec No.	Description	Qty	Unit	Unit Price	Amount
22	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	2000	TN		
23	620	ASPHALT BINDER FOR PLANT MIX	200	TN		
24	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	30	TN		
25	815	6" PVC SUBDRAIN, SCHEDULE 80	500	LF		
26	840	MASONRY DRAINAGE STRUCTURES	6	EA		
27	840	FRAME WITH GRATE, STD 840.14	2	EA		
28	840	FRAME WITH COVER, STD 840.54	4	EA		
29	846	2'-6" CONCRETE CURB AND GUTTER	100	LF		
30	SP	FLUSH CONCRETE CURB	300	LF		
31	848	4" CONCRETE SIDEWALK	4900	SY		
32	SP	FENCE, 48" CHAIN LINK	0	LF		
33	SP	FENCE, 96" CHAIN LINK	2500	LF		
34	SP	28' 96"- CHAIN LINK DOUBLE SWING GATE (Overlook Site)	1	EA		
35	SP	12' 48"- CHAIN LINK DOUBLE SWING GATE (Aircraft Display)	0	EA		
36	SP	30' 3-BAR METAL GATE (Food Truck Drive)	1	EA		
37	SP	32' DOUBLE SWING GATE (End of Overlook Drive & ASR Entrance)	2	EA		
38	SP	REMOVAL OF EXISTING FENCE	500	LF		
39	876	RIP RAP, CLASS B	5	TN		
40	876	GEOTEXTILE FOR DRAINAGE	10	SY		
<b>SIGNING</b>						
41	901	CONTRACTOR FURNISHED, TYPE E SIGN	168	SF		
42	903	SUPPORTS, 3-LB STEEL U-CHANNEL	860	LF		
43	904	SIGN ERECTION TYPE E (GROUND MOUNTED)	64	EA		
<b>TRAFFIC CONTROL</b>						
44	1110	WORK ZONE SIGNS (STATIONARY)	54	SF		
45	1110	WORK ZONE SIGNS (PORTABLE)	54	SF		
46	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	10	SF		
47	1130	DRUMS	100	EA		
48	1145	BARRICADES (TYPE III)	100	LF		
49	1150	FLAGGER	6	DAY		
<b>PAVEMENT MARKING</b>						
50	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4",90 MIL)	12,000	LF		
51	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8",90 MIL)	50	LF		
52	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24" 90 MIL)	100	EA		
53	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MIL)	4	EA		
54	1205	PAINT PAVEMENT MARKING LINES (4")	4,000	LF		
55	1205	PAINT PAVEMENT MARKING LINES (12")	600	LF		
56	1205	PAINT PAVEMENT MARKING LINES (24")	650	LF		

Line Item	Spec No.	Description	Qty	Unit	Unit Price	Amount
57	1205	PAINT PAVEMENT MARKING SYMBOL	16	EA		
<b>SITE AMENITIES</b>						
58	SP	ALLOWANCE NO.1 AIRCRAFT DISPLAY	1	ALLOW	125,000.00	125,000.00
59	SP	ALLOWANCE NO.2 AIRPORT OVERLOOK ENTRANCE SIGN	1	ALLOW	150,000.00	150,000.00
60	SP	ALLOWANCE NO.3 SITE WAYFINDING SIGNAGE	1	ALLOW	115,000.00	115,000.00
61	SP	AIRPORT OVERLOOK ENTRANCE SIGN CONCRETE FOUNDATION	1	LS		
62	SP	MOCK RUNWAY MARKING	1	LS		
63	SP	REMOVABLE STEEL BOLLARD	5	EA		
64	SP	CONCRETE WHEEL STOP	155	EA		
65	SP	SYNTHETIC TURF	7,500	SF		
66	SP	8' SURFACE MOUNT PICNIC TABLE	23	EA		
67	SP	8' ACCESSIBLE SURFACE MOUNT PICNIC TABLE	6	EA		
68	SP	6' BENCH SEAT (CLT SUPPLIED)	12	EA		
69	SP	TRASH RECEPTACLE	12	EA		
70	SP	PET WASTE STATION	4	EA		
71	SP	RACK FOR BICYCLE PARKING, CLDS 50.21	3	EA		
72	SP	TRASH DUMPSTER ENCLOSURE	1	LS		
<b>SITE ELECTRICAL AND LIGHTING</b>						
73	SP	CONCRETE BOLLARD LIGHTING	12	EA		
74	SP	ELECTRICAL JUNCTION BOX	20	EA		
75	SP	6" ELECTRICAL CONDUIT, SCHEDULE 40	700	LF		
76	SP	3" ELECTRICAL CONDUIT, SCHEDULE 40	5,500	LF		
77	SP	2" ELECTRICAL CONDUIT, SCHEDULE 40	300	LF		
78	SP	1" ELECTRICAL CONDUIT, SCHEDULE 40	1,000	LF		
79	SP	2 AWG SIZE 8 CONDUCTOR (BK & RD)	3,000	LF		
80	SP	1 AWG SIZE 10 GROUNDING CONDUCTOR	2,000	LF		
81	SP	100 Amps, 208Y/120/240V LOAD CENTER	1	EA		
<b>SITE SECURITY</b>						
82	SP	ALLOWANCE NO.4 SECURITY ITEMS PROVIDED, INSTALLED AND ITEGRAED BY JCI	1	ALLOW	314,000.00	314,000.00
83	SP	NETWORK SWITCH (TERMINAL COMMUNICATIONS ROOM)	8	EA		
84	SP	1" CONDUIT (MATERIAL AND INSTALLATION)	3,500	LF		
85	SP	2 AWG SIZE 8 CONDUCTOR (BK & RD)	5,000	LF		
86	SP	1 AWG SIZE 10 GROUNDING CONDUCTOR	3,500	LF		
87	SP	CAT-6	100	LF		
88	SP	24 VDC POWER SUPPLIES	11	EA		
89	SP	48 VDC POWER SUPPLIES	8	EA		
90	SP	POE INJECTOR	1	EA		
91	SP	EQUIPMENT ENCLOSURE	8	EA		
92	SP	PELCO 12' POLE	8	EA		
93	SP	PELCO POLE BASE	8	EA		

Line Item	Spec No.	Description	Qty	Unit	Unit Price	Amount
94	SP	ANCHOR BOLTS	64	EA		
95	SP	ACORN CAP FOR POLE	8	EA		
96	SP	FIRE DEPARTMENT ACCESS KEY LOCK BOX	1	EA		
<b>WATER AND SEWER</b>						
97	SPUC-01A	8" DI PC350 RESTRAINED JOINT WATER LINE W/FITTINGS	2,010	LF		
98	SPUC-01B	6" DI PC350 RESTRAINED JOINT WATER LINE W/FITTINGS	74	LF		
99	SPUC-01C	2" PVC SCH40 WATER LINE W/FITTINGS	2,000	LF		
100	SPUC-01D	1" PVC SCH40 WATER LINE W/FITTINGS	1,800	LF		
101	SPUC-02A	8" GATE VALVE	2	EA		
102	SPUC-02B	6" GATE VALVE	5	EA		
103	SPUC-02C	MJ CAP W/ 2" BLOW OFF ASSEMBLY	1	EA		
104	SPUC-02D	1" IRRIGATION WATER SERVICE METER WITH BACKFLOW	1	EA		
105	SPUC-02E	2" DOMESTIC WATER METER WITH BACKFLOW	1	EA		
106	SPUC-02F	8" FIRE LINE SERVICE WITH DETECTOR METER AND BACKFLOW	1	EA		
107	SPUC-02G	FIRE HYDRANT ASSEMBLY	4	EA		
108	SPUC-02H	24" X 8" TAPPING SADDLE AND VALVE	1	EA		
109	SPUC-03A	6" SEWER SERVICE WITH CLEANOUTS	294	LF		
110	SPUC-03B	PRECAST SEPTIC TANK 2500 GALLONS	1	EA		
111	SPUC-03C	PRECAST PUMP TANK W/ PUMP SYSTEM AND CONNECTION BETWEEN TANKS	1	EA		
112	SPUC-03D	2" FORCE MAIN WITH CLEANOUTS, BALL VALVES AND PVC SLEEVES	2,591	LF		
113	SPUC-03E	AIR RELEASE VALVE ASSEMBLY	2	EA		
114	SPUC-03F	MANIFOLD ASSEMBLY W/SUPPLY LINES	1	EA		
115	SPUC-03G	NITRIFICATION LINES INCLUDING CLEARING AND ALL SEPTIC FIELD RESTORATION	1,500	LF		
116	SPUC-04A	REMOVAL OF UNSUITABLE MATERIAL	150	CY		
117	SPUC-04B	SELECT FILL	150	CY		
<b>BUILDING AND ARCHITECTURAL</b>						
118	SP	ARCHITECTURAL	1	LS		
119	SP	STRUCTURAL	1	LS		
120	SP	PLUMBING	1	LS		
121	SP	MECHANICAL	1	LS		
122	SP	ELECTRICAL	1	LS		

Line Item	Spec No.	Description	Qty	Unit	Unit Price	Amount
123	SP	CONCRETE PAVERS (MEMORIAL)	1	LS		
124	SP	PRE-CAST BENCH TYPE 1 (MEMORIAL)	1	LS		
125	SP	PRE-CAST BENCH TYPE 2 (PLAYGROUND)	1	LS		
<b>LANDSCAPING</b>						
126	SP	SHRUB - 3 GAL	217	EA		
127	SP	TREE - 2" CAL MIN.	27	EA		
128	SP	MULCH	100	CY		
129	SP	TOP SOIL	650	CY		
130	SP	RIVER ROCK	100	TN		
131	SP	IRRIGATION SYSTEM - COMPLETE	1	LS		
<b>EROSION CONTROL</b>						
132	1605	TEMPORARY SILT FENCE	5,000	LF		
133	1610	EROSION CONTROL STONE, CLASS B	400	TN		
134	1615	TEMPORARY MULCHING	2	ACR		
135	1620	SEED FOR TEMPORARY SEEDING	500	LB		
136	1620	FERTILIZER FOR TEMPORARY SEEDING	3	TN		
137	1622	TEMPORARY SLOPE DRAINS	700	LF		
138	1630	SILT EXCAVATION	3,000	CY		
139	1631	MATTING FOR EROSION CONTROL	13,000	SY		
140	SP	COIR FIBER MAT	20	SY		
141	SP	PERMANENT SOIL REINFORCEMENT MAT	1,500	SY		
142	1632	1/4" HARDWARE CLOTH	200	LF		
143	SP	24" TEMPORARY PIPE	300	LF		
144	SP	COIR FIBER WATTLE	300	LF		
145	SP	SKIMMER BASIN MAINTENANCE	2	EA		
146	1660	SEEDING AND MULCHING	4	ACR		
147	1660	MOWING	4	ACR		
148	1661	SEED FOR REPAIR SEEDING	100	LB		
149	1661	FERTILIZER FOR REPAIR SEEDING	0.5	TN		
150	1662	SEED FOR SUPPLEMENTAL SEEDING	100	LB		
151	1665	FERTILIZER TOPDRESSING	2	TN		
152	SP	CONCRETE WASHOUT STRUCTURE	3	EA		
153	1667	SPECIALIZED HAND MOWING	20	MHR		
<b>OVERLOOK WATER QUALITY BASIN</b>						
154	200	Borrow Excavation	1,037	CY		
155	225	No. 57 Washed Stone for Sand Filters	333	TN		
156	225	6" Perforated PVC Pipe	414	LF		
157	225	8" Non-Perforated PVC Pipe	94	LF		
158	275	Geotextile Fabric for Filter Basin	997	SY		
159	520	PVC Cleanout	16	EA		
160	876	PVC Elbows	2	EA		
161	876	PVC Tees	4	EA		

Line Item	Spec No.	Description	Qty	Unit	Unit Price	Amount
162	1620	Pre-Caste Riser Basin	1	EA		
163	1660	Pre-Caste Riser Basin (Above 5' VF)	1	EA		
164	838	4" DIP	2	LF		
165	838	4" Gate Valve and Valve Box	1	EA		
166	825	HDPE Peaked Trash Rack	1	EA		
167	310	Rip Rap, Class I	17	TN		
168	310	Rip Rap, Class A	321	TN		
169	825	Geotextile Fabric, Type-2	466	SY		
170	1605	Temporary Silt Fence	476	LF		
171	1605	Inlet Protection	6	EA		
172	1639	Special Stilling Basins	1	EA		
173	1664	Sodding	561	SY		
174	SP	Sand Aggregate Material for Sand Filter BMP	997	TN		
175	1610	Fence, 5' Chain Link Fence	280	LF		
176	876	Fence Removal. 5' Chain Link Fence	300	LF		
177	240	Fence, 5' Chain Link (Double Gate)	1	EA		
178	852	Tree Removal	28	EA		
179	610	Tree - 3" Caliper	28	EA		
180	SP	AIRCRAFT DISPLAY CONCRETE FOUNDATION	1	LS		
181	SP	BOLLARD AND CHAIN BARRIER	26	EA		
185	1610	SEDIMENT CONTROL STONE	120	TN		
UNIT PRICE TOTAL AMOUNT						

ADDITIVE BID ALTERNATES						
182	1665	SYNTHETIC TURF AT MOCK RUNWAY	3,730	SF		
183	815	6" PVC SUBDRAIN, SCHEDULE 80	200	LF		
184	520	AGGREGATE BASE COURSE	140	TN		
UNIT PRICE TOTAL AMOUNT						

In case of error in extension of prices in the Bid, the unit prices, where available, shall govern.

#### **BID GUARANTEE**

The undersigned Bidder agrees to execute the Contract for the above amount and to furnish surety as specified within 10 days after notice of award, if offered within 120 calendar days after receipt of bids, and upon failure to do so agrees to forfeit the attached cash, cashier's check, certified check, U. S. money order, or bid bond, as liquidated damages for such failure, in the amount of:

\_\_\_\_\_ Dollars (\$\_\_\_\_\_)  
the stated amount constituting five percent (5%) of the Base Bid amount above.



**BID SUPPLEMENTS**

Attached to this Bid Form and incorporated herein are the following documents, completed in full by the undersigned:

Certificate of Non-Discrimination  
DBE Form # 3  
DBE Form # 5  
Bid Bond  
Buy American Certification  
Tax Deficiency and Felony Convictions Certification  
Lobbying and Influencing Federal Employees Certification

Form copies of DBE Form #3 and DBE Form #5 can be found at:

<http://www.cltairport.com/doingbusinesswithCLT/pages.default.aspx>

**PLEASE NOTE - FAILURE TO INCLUDE ALL BID SUPPLEMENTS MAY RESULT REJECTION OF THIS BID.**

**CONTRACTOR'S LICENSE**

The undersigned further states that he is a duly licensed Contractor, for the type of work proposed, in the State of North Carolina, and that all fees, permits, etc., pursuant to the submission of this proposal have been paid in full. LICENSE #

\_\_\_\_\_.

**CONFIDENTIALITY REQUIREMENTS**

By signing this bid form, I acknowledge that I have read, understand and shall comply with the confidentiality requirements as stated in the Instruction to Bidders, Section 13.

**G. DAVIS-BACON WAGE DETERMINATION**

Pursuant to Section IV.E.14 of the Contract, all laborers and mechanics employed or working upon the site of the Work will be paid at rates not less than those contained in the following wage determination of the Secretary of labor:"

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"General Decision Number: NC20230088 01/06/2023

Superseded General Decision Number: NC20220088

State: North Carolina

Construction Type: Highway

Counties: Alamance, Anson, Cabarrus, Chatham, Davie, Durham, Forsyth, Gaston, Guilford, Mecklenburg, Orange, Person, Randolph, Rockingham, Stokes, Union and Yadkin Counties in North Carolina.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker

<https://sam.gov/wage-determination/NC20230088/0>

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protections under the Executive Orders is available at  
<http://www.dol.gov/whd/govcontracts>.

Modification Number      Publication Date  
0                              01/06/2023

SUNC2014-003 11/14/2014

	Rates	Fringes
BLASTER.....	\$ 18.64	
CARPENTER.....	\$ 13.68 **	.05
CEMENT MASON/CONCRETE FINISHER...	\$ 13.93 **	
ELECTRICIAN		
Electrician.....	\$ 18.79	2.72
Telecommunications Technician.....	\$ 15.19 **	1.25
IRONWORKER.....	\$ 13.30 **	
LABORER		
Asphalt Raker and Spreader..	\$ 12.78 **	
Asphalt Screed/Jackman.....	\$ 14.50 **	
Carpenter Tender.....	\$ 12.51 **	.27
Cement Mason/Concrete Finisher Tender.....	\$ 11.04 **	
Common or General.....	\$ 10.40 **	.01
Guardrail/Fence Installer...	\$ 13.22 **	
Pipelayer.....	\$ 12.43 **	
Traffic Signal/Lighting Installer.....	\$ 15.65 **	.24
PAINTER		
Bridge.....	\$ 23.77	
POWER EQUIPMENT OPERATOR		
Asphalt Broom Tractor.....	\$ 10.00 **	
Bulldozer Fine.....	\$ 16.13 **	
Bulldozer Rough.....	\$ 14.36 **	
Concrete Grinder/Groover...	\$ 17.92	
Crane Boom Trucks.....	\$ 18.19	
Crane Other.....	\$ 19.83	
Crane Rough/All-Terrain....	\$ 19.10	
Drill Operator Rock.....	\$ 14.28 **	
Drill Operator Structure...	\$ 20.89	
Excavator Fine.....	\$ 16.95	
Excavator Rough.....	\$ 13.63 **	
Grader/Blade Fine.....	\$ 19.84	
Grader/Blade Rough.....	\$ 15.47 **	
Loader 2 Cubic Yards or Less.....	\$ 13.31 **	
Loader Greater Than 2 Cubic Yards.....	\$ 16.19 **	
Material Transfer Vehicle (Shuttle Buggy).....	\$ 15.44 **	
Mechanic.....	\$ 17.51	
Milling Machine.....	\$ 15.22 **	
Off-Road Hauler/Water Tanker.....	\$ 11.83 **	
Oiler/Greaser.....	\$ 14.16 **	
Pavement Marking Equipment..	\$ 12.05 **	

<https://sam.gov/wage-determination/NC20230088/0>

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Paver Asphalt.....\$ 15.97 \*\*  
Paver Concrete.....\$ 18.20  
Roller Asphalt Breakdown...\$ 12.79 \*\*  
Roller Asphalt Finish.....\$ 13.76 \*\*  
Roller Other.....\$ 12.08 \*\*  
Scraper Finish.....\$ 12.65 \*\*  
Scraper Rough.....\$ 11.50 \*\*  
Slip Form Machine.....\$ 19.60  
Tack Truck/Distributor  
Operator.....\$ 14.82 \*\*

TRUCK DRIVER

GVWR of 26,000 or Less.....\$ 11.45 \*\*  
GVWR of 26,001 Lbs or  
Greater.....\$ 13.57 \*\* .03

-----  
WELDERS - Receive rate prescribed for craft performing  
operation to which welding is incidental.

\*\*\*\*\*  
\*\* Workers in this classification may be entitled to a higher  
minimum wage under Executive Order 14026 (\$16.20) or 13658  
(\$12.15). Please see the Note at the top of the wage  
determination for more information.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave  
for Federal Contractors applies to all contracts subject to the  
Davis-Bacon Act for which the contract is awarded (and any  
solicitation was issued) on or after January 1, 2017. If this  
contract is covered by the EO, the contractor must provide  
employees with 1 hour of paid sick leave for every 30 hours  
they work, up to 56 hours of paid sick leave each year.  
Employees must be permitted to use paid sick leave for their  
own illness, injury or other health-related needs, including  
preventive care; to assist a family member (or person who is  
like family to the employee) who is ill, injured, or has other  
health-related needs, including preventive care; or for reasons  
resulting from, or to assist a family member (or person who is  
like family to the employee) who is a victim of, domestic  
violence, sexual assault, or stalking. Additional information  
on contractor requirements and worker protections under the EO  
is available at  
<https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within  
the scope of the classifications listed may be added after  
award only as provided in the labor standards contract clauses  
(29CFR 5.5 (a) (1) (ii)).

-----  
The body of each wage determination lists the classification  
and wage rates that have been found to be prevailing for the  
cited type(s) of construction in the area covered by the wage  
determination. The classifications are listed in alphabetical  
order of "identifiers" that indicate whether the particular  
rate is a union rate (current union negotiated rate for local),  
a survey rate (weighted average rate) or a union average rate  
(weighted union average rate).

Union Rate Identifiers

<https://sam.gov/wage-determination/NC20230088/0>

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A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

---

#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

<https://sam.gov/wage-determination/NC20230088/0>

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- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISIO"

## SECTION 224233 - WASH FOUNTAINS

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Solid-surface, linear wash fountains.
2. Wash-fountain carriers.

B. Related Requirements:

1. Section 224216.16 "Commercial Sinks."

#### 1.2 ACTION SUBMITTALS

A. Product Data:

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for wash fountains.
2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

B. Shop Drawings: For each type of wash fountain.

1. Include plans, elevations, sections, and mounting details.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

#### 1.3 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For wash fountains and components to include in operation and maintenance manuals.

#### 1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Extra Stock Materials: Furnish extra materials to Owner that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Faucet Washers and O-Rings: Equal to 5 percent of quantity of each type and size installed.
2. Faucet Cartridges and O-Rings: Equal to 5 percent of quantity of each type and size installed.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

#### A. Standards:

1. Wash fountain spray heads and faucets intended to convey or dispense water for human consumption must comply with the SDWA, requirements of authorities having jurisdiction, and NSF 61 and NSF 372, or must be certified in compliance with NSF 61 and NSF 372 (by an ANSI-accredited third-party certification body) that the weighted average lead content at wetted surfaces is less than or equal to 0.25 percent.
- B. Comply with CSA B45.5/IAPMO Z124 for solid-surface, linear wash fountains.
- C. Comply with ASME A112.18.1/CSA B125.1 for water supply fittings.
- D. Comply with ASME A112.18.2/CSA B125.2 for plumbing waste fittings.
- E. Comply with ASSE 1016 for mixing valves.
- F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.

### 2.2 SOLID-SURFACE, LINEAR WASH FOUNTAINS

#### A. Wash Fountains - Solid Surface, Linear (Side-by-Side) Receptor: .

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Acorn Engineering Company; a Division of Morris Group International.
  - b. Bradley Corporation.
  - c. Intersan by Aqua Design Manufacturing.
  - d. Sloan Valve Company.
  - e. Willoughby Industries, Inc.
2. Source Limitations: Obtain water fountains from single source from single manufacturer.
3. Bowl(s) and Counter:
  - a. Height to Rim: ADA compliant.



- b. Color or Finish: Refer to Architect.
  - c. Number of Bowls or User Stations: Two.
  - d. Bowl Shape: Continuous wave.
  - e. Drain: Grid with NPS 1-1/2 tailpiece, each bowl.
- 4. Apron: Required, with access panel.
- 5. Faucets:
  - a. Type: Manufacturer's standard, chrome-plated solid brass.
  - b. Control: Hardwired, control-voltage, sensor-actuated actuation with thermostatic mixing valve, and having check stops for each bowl or user station.
- 6. Soap Dispensers: Not required dispenser for each user station.
- 7. Mounting: Manufacturer's wall-mounting bracket and/or commercial floor-mounted carrier.
- 8. Supply Fittings:
  - a. Piping: NPS 1/2 copper tubing, each bowl.
  - b. Valves: Shutoff valve on each supply.
  - c. Supply Piping: From wall.
- 9. Waste Fittings:
  - a. Trap and Drain Piping: NPS 1-1/2, each bowl.

## 2.3 WASH-FOUNTAIN CARRIERS

### A. Wash-Fountain Carrier: .

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Jay R. Smith Mfg Co; a division of Morris Group International.
  - b. Josam Company.
  - c. MIFAB, Inc.
  - d. WATTS; A Watts Water Technologies Company.
  - e. Wade; a subsidiary of McWane Inc.
  - f. Zurn Industries, LLC.
- 2. Source Limitations: Obtain water-fountain carriers from single source from single manufacturer.
- 3. Standard: ASME A112.6.1M.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine roughing-in for water-supply piping, and sanitary drainage and vent piping systems to verify actual locations of piping connections before wash-fountain installation.
- B. Examine walls and floors for suitable conditions where wash fountains will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION, GENERAL

- A. Install wash fountains level and plumb in accordance with rough-in drawings.
- B. Install off-floor carrier supports, affixed to building substrate, for wall-mounted wash fountains.
- C. Install accessible, wall-mounted wash fountains at mounting height in accordance with ICC A117.1.
- D. Install water-supply piping with shutoff valve on each supply to each wash fountain to be connected to domestic-water distribution piping. Use ball valve. Install valves in locations where they can be easily reached for operation. Valves are specified in Section 220523.12 "Ball Valves for Plumbing Piping."
- E. Install trap and waste piping on each drain outlet of each wash fountain to be connected to sanitary drainage system.
- F. Wall Flange and Escutcheon Installation:
  - 1. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations.
  - 2. Install deep-pattern escutcheons if required to conceal protruding fittings.
  - 3. Comply with escutcheon requirements specified in Section 220518 "Escutcheons for Plumbing Piping."
- G. Joint Sealing:
  - 1. Seal joints between fixtures and walls using sanitary-type, one-part, mildew-resistant silicone sealant.
  - 2. Match sealant color to fixture color.
  - 3. Comply with sealant requirements specified in Section 079200 "Joint Sealants."

### 3.3 PIPING CONNECTIONS

- A. Connect wash fountains with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.
- B. Comply with water piping requirements specified in Section 221116 "Domestic Water Piping."
- C. Comply with requirements for waste drainage piping and vent piping specified in Section 221316 "Sanitary Waste and Vent Piping."
- D. Install protective-shielding pipe covers and enclosures on exposed supplies and waste piping of accessible wash fountains. Comply with requirements in Section 220719 "Plumbing Piping Insulation."

### 3.4 ADJUSTING

- A. Operate and adjust wash fountains and controls. Replace damaged and malfunctioning wash fountains, fittings, and controls.
- B. Adjust water pressure at faucets to produce proper flow.

### 3.5 CLEANING AND PROTECTION

- A. After installing wash fountains, inspect and repair damaged finishes.
- B. Clean wash fountains, faucets, and other fittings with manufacturers' recommended cleaning methods and materials.
- C. Install protective covering for installed wash fountains and fittings.
- D. Do not allow use of wash fountains for temporary facilities unless approved in writing by Owner.

END OF SECTION 224233

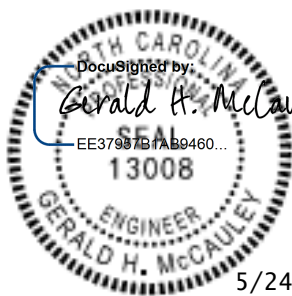
## **ELECTRICAL**

Payment for this item includes furnishing all labor, equipment, and materials for installing, testing, and placing into successful operation conduit, wiring, electrical panels, control switches, photocell, light fixtures as shown on the Contract Drawings.

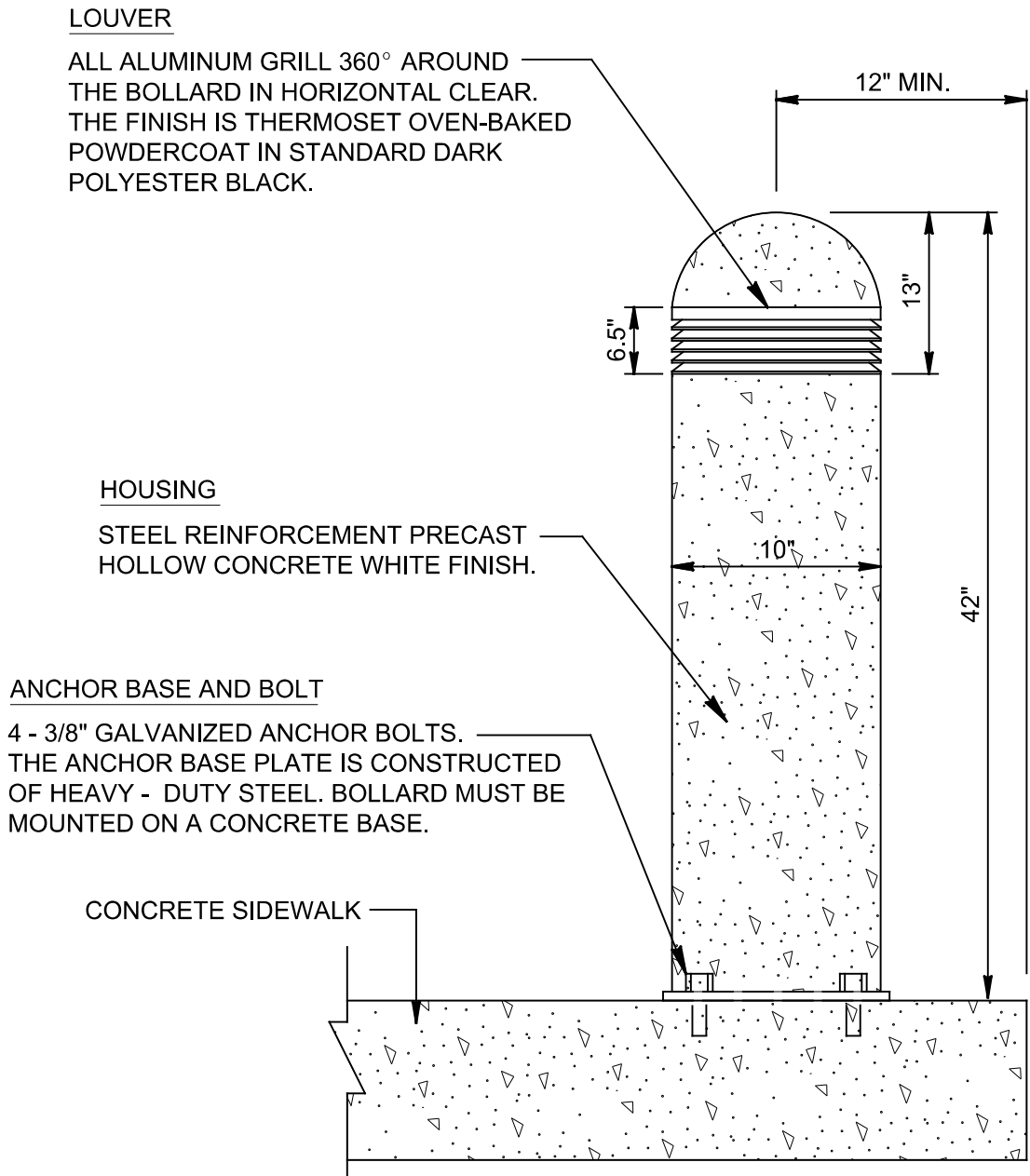
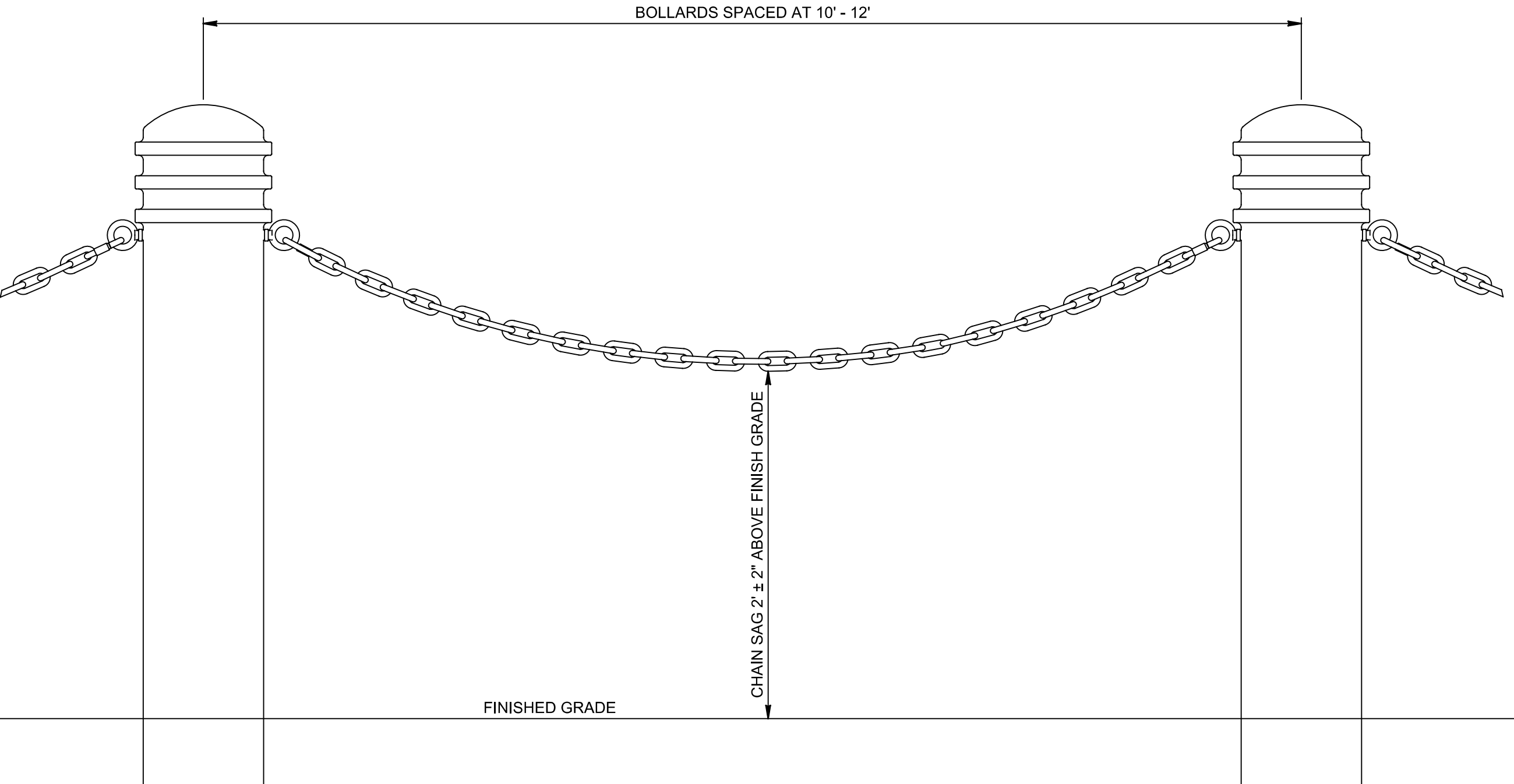
This payment item also includes the following work items:

- Submittals of manufacturers data and other information required by the contract documents.
- All bedding sand or stone per applicable detail for conduit installation.
- All miscellaneous fittings and connections not covered in other bid items.
- All other required work not specifically called out or indicated in the other payment items which are necessary to install and place the entire new electrical system and appurtenances into successful operation.

Method of payment for electrical items for building construction is lump sum.

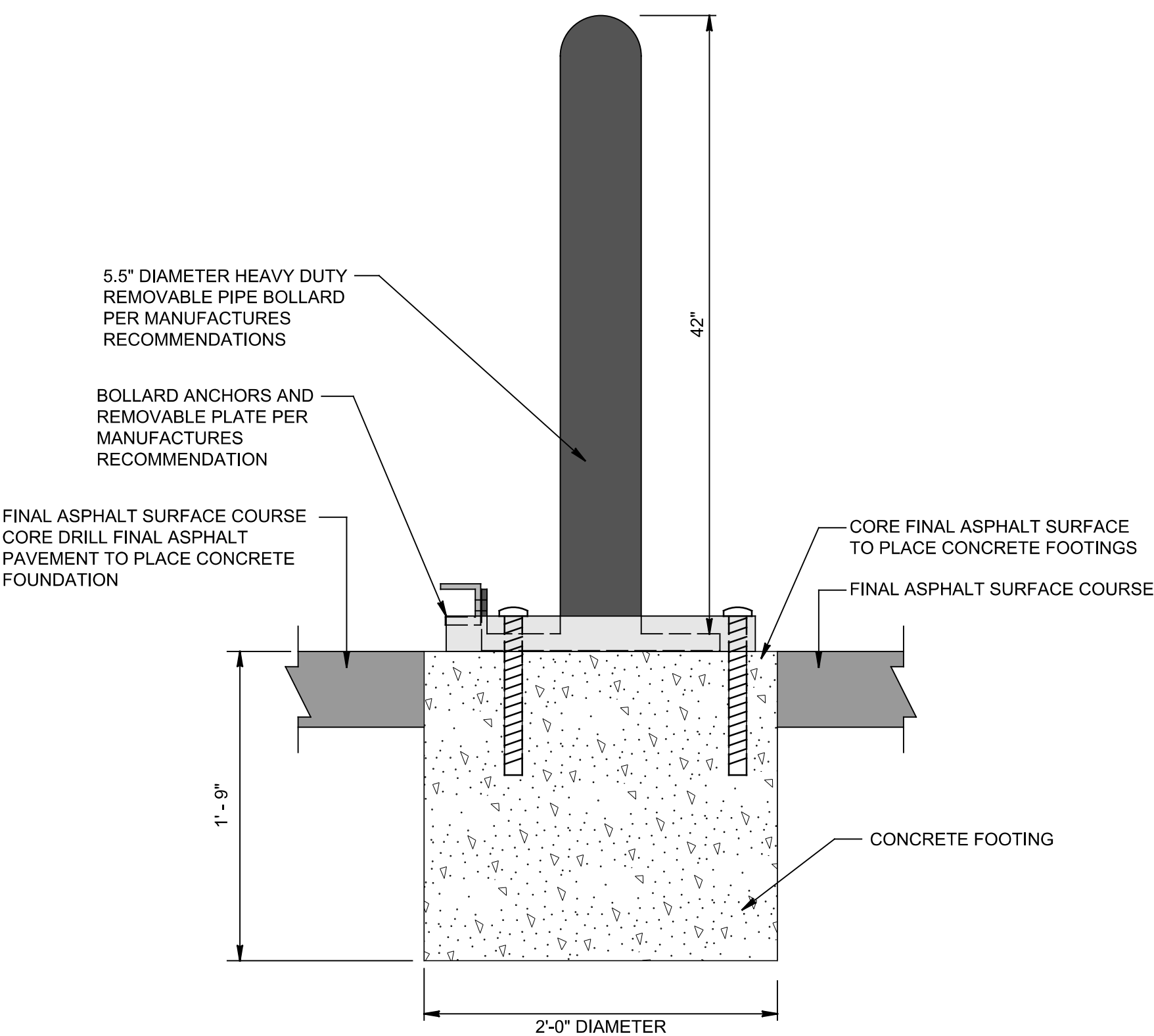


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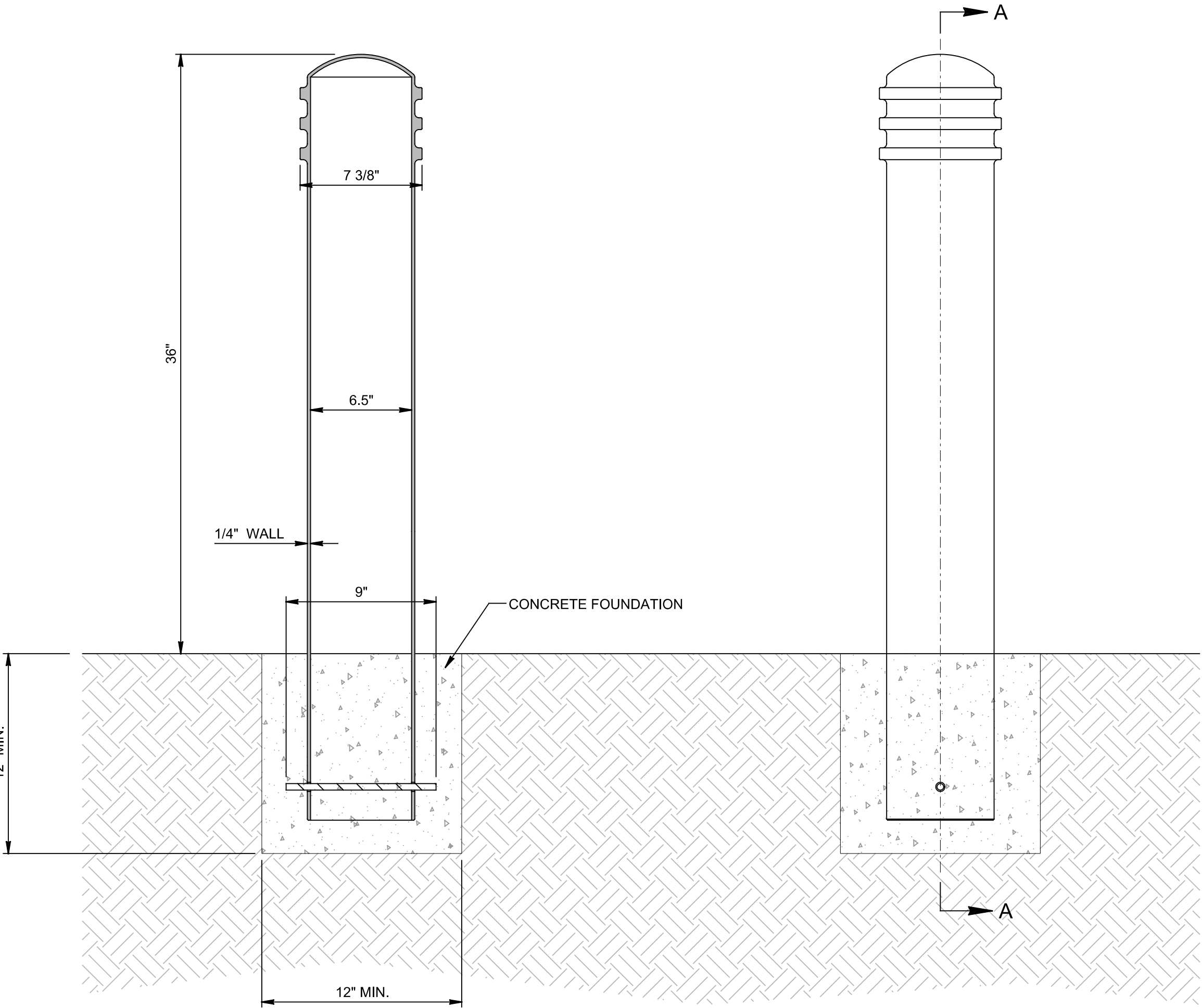
CONCRETE BOLLARD WITH LIGHT

- NOTES: 1. PLACEMENT IN SIDEWALK  
2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION.



HEAVY DUTY REMOVABLE PIPE BOLLARD

- NOTES: 1. CONTRACTOR TO PAINT ALL ABOVE GRADE PORTIONS OF REMOVABLE BOLLARD AND REMOVABLE PLATES SAFETY YELLOW.  
2. REMOVABLE - MOUNTING PLATE SLIDES OUT OF REMOVABLE BASE FOR TEMPORARY ACCESS TO EQUIPMENT PADLOCKABLE.  
3. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION.

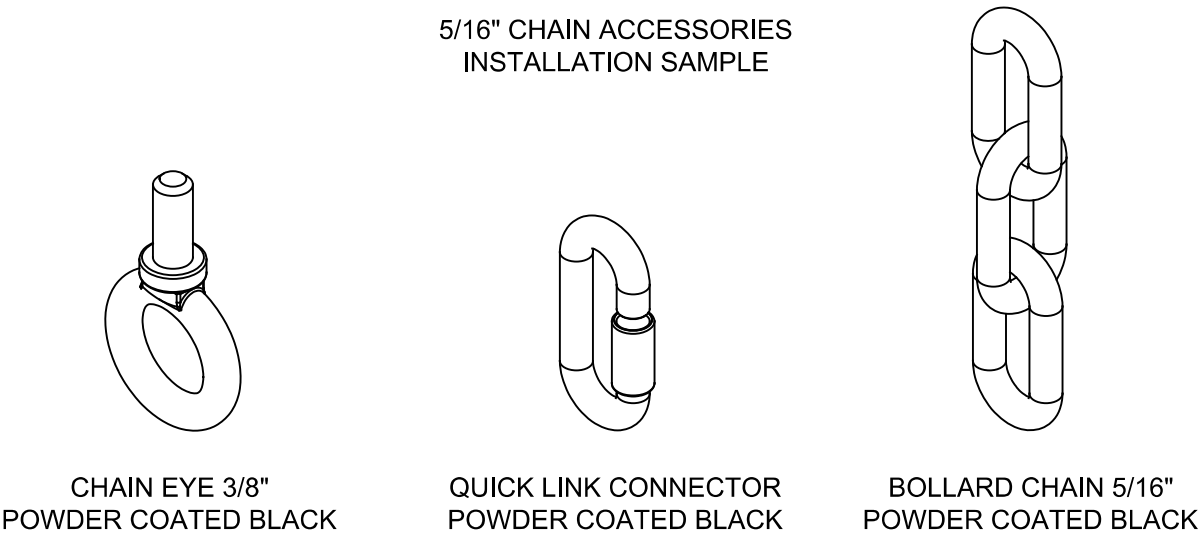
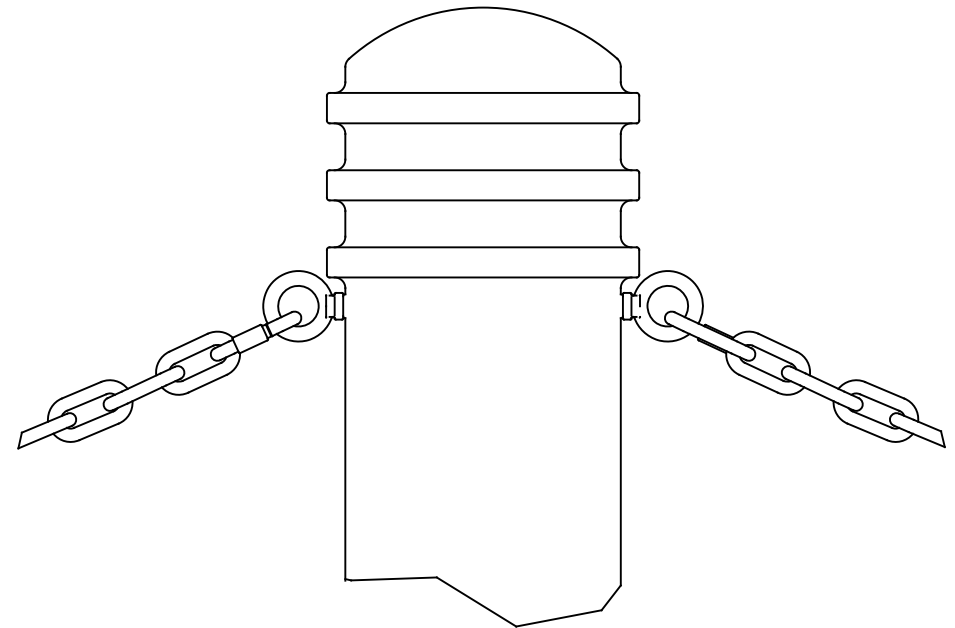
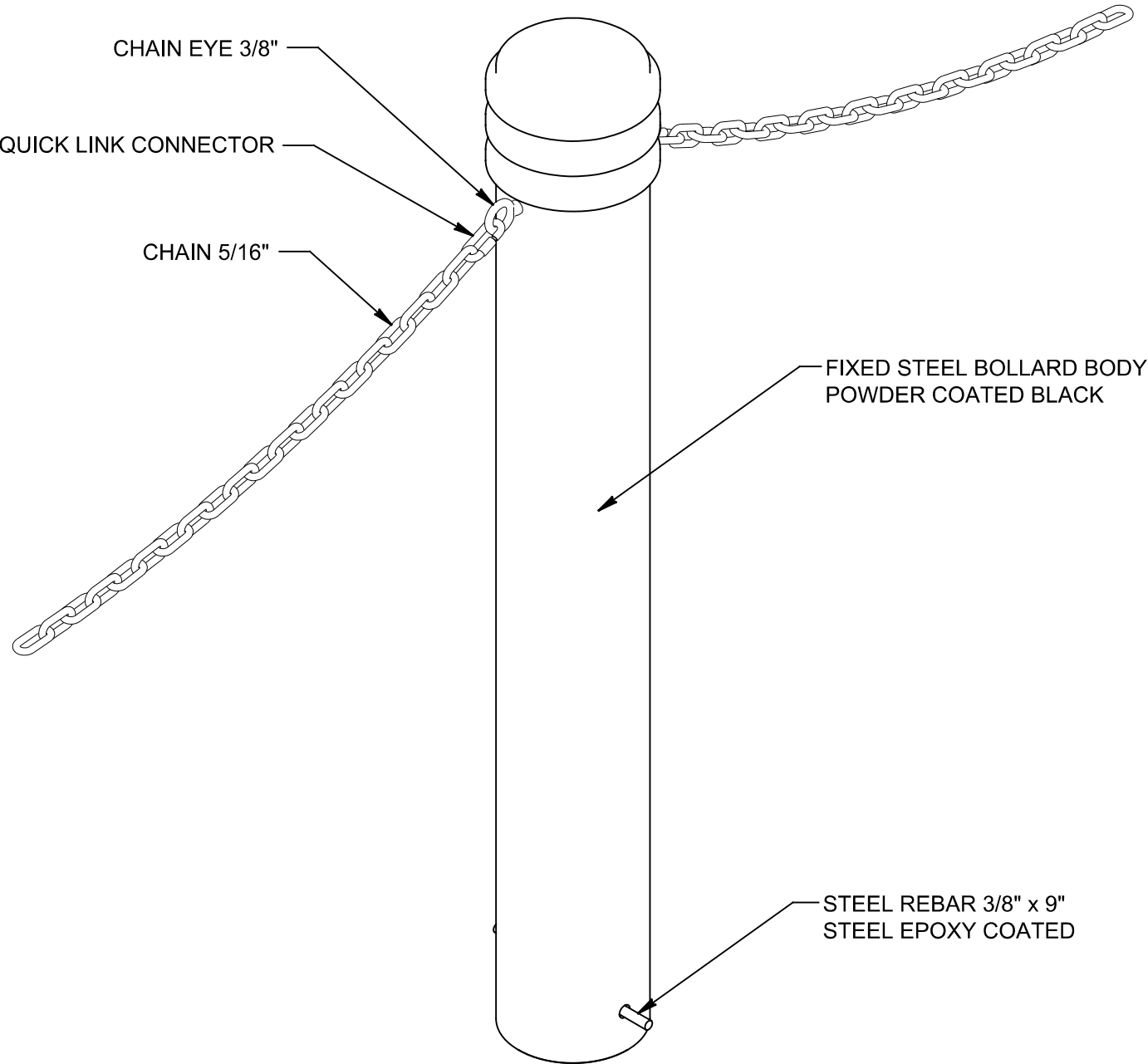


BOLLARD AND CHAIN BARRIER

NOTES: 1. PLACEMENT LOCATED IN AIRCRAFT DISPLAY AREA.

2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION.

3. PROVIDE A METHOD TO PLACE A PADLOCK AT THE BOLLARD AND CHAIN BARRIER. COORDINATE THE LOCATION WITH CLT. THE PADLOCK WILL BE PROVIDED BY CLT.

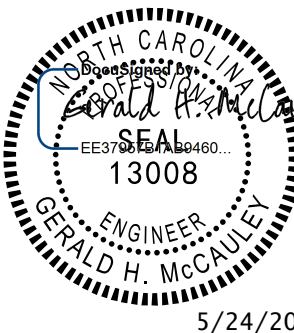


Plans Prepared By:



STV Engineers, Inc.  
900 West Trade St., Suite 715  
Charlotte, NC 28202  
NC License Number F-0991

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



TALBERT, BRIGHT & ELLINGTON

ENGINEERING & PLANNING CONSULTANTS  
3525 WHITEHALL PARK DRIVE, SUITE 210  
CHARLOTTE, NORTH CAROLINA 28273  
PHONE: 704-426-6070 FAX: 704-426-6080  
NC LICENSE NO. C-1163

REVISIONS	DATE
1. ADDENDUM NO. 1 - ADDED ENTIRE SHEET 3A-10	05/15/2023
2. ADDENDUM NO. 2 - ADDED PADLOCK REQUIREMENT	05/25/2023
3.	
4.	
5.	

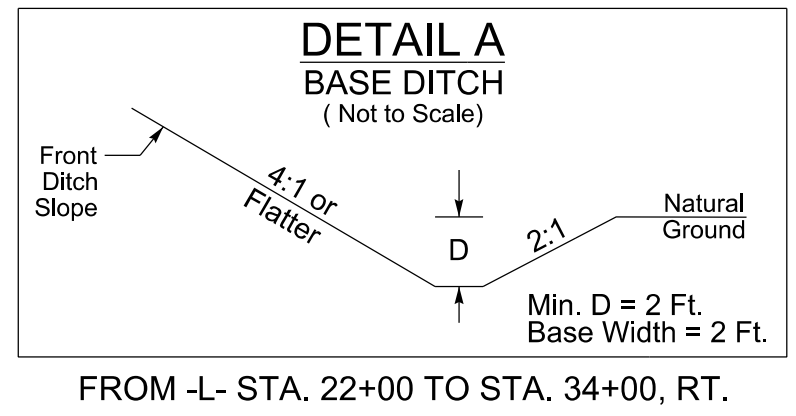
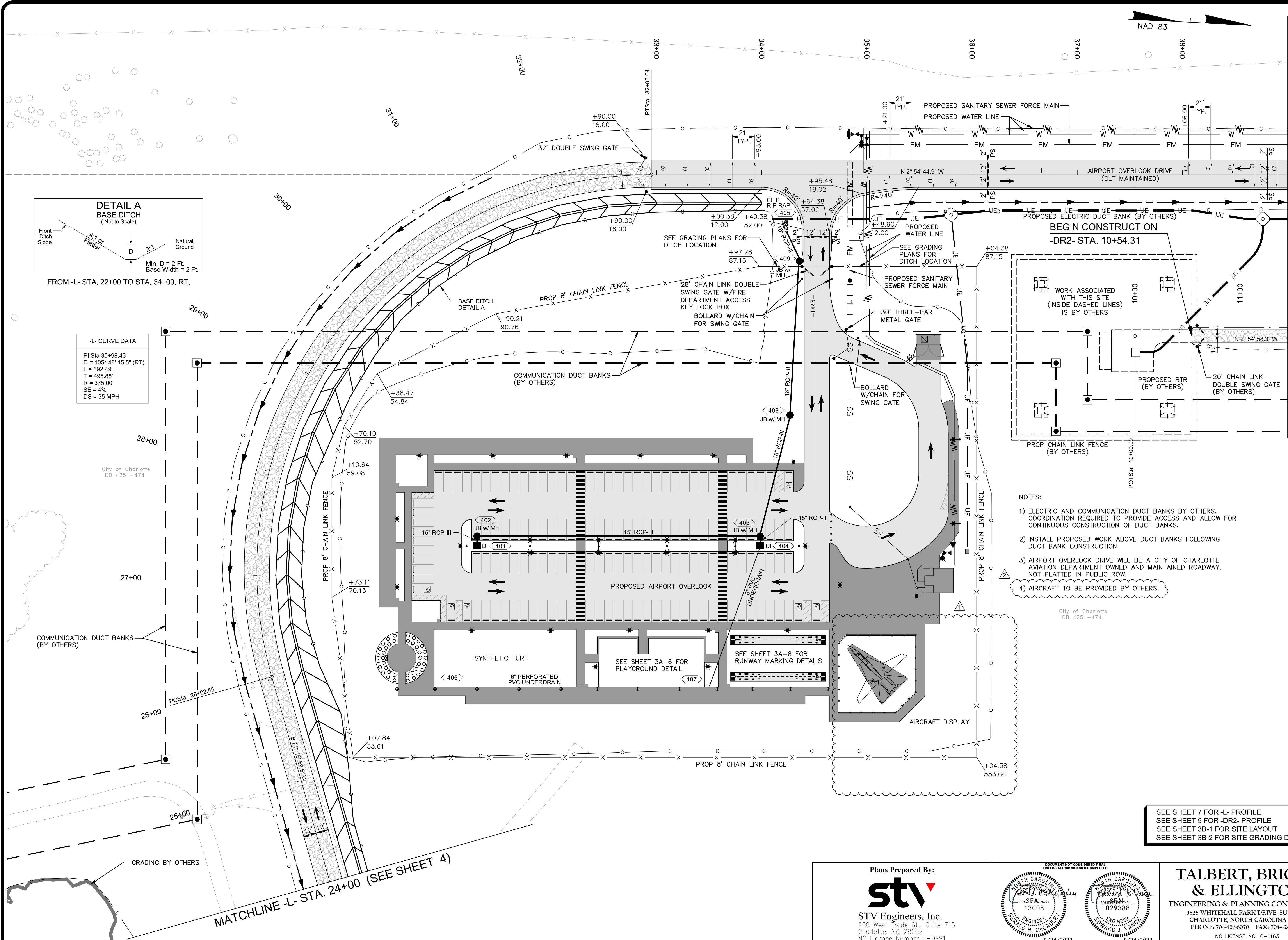
DESIGNED BY: STV ENGINEERS	PROJECT ENG.: JNJ	PROJECT NO.: 4020901837-5	CHECKED BY: GHM	DATE ISSUED: 05/15/2023
	DRAWN BY: CEG			



AIRCRAFT OVERLOOK DRIVE	SCALE: NTS
DETAILS	

SHT.  
3A-10





-L- CURVE DATA	
PI Sta	30+98.43
D =	105° 48' 15.5" (RT)
L =	692.49'
T =	495.88'
R =	375.00'
SE =	4%
DS =	35 MPH

- NOTES:
- 1) ELECTRIC AND COMMUNICATION DUCT BANKS BY OTHERS. COORDINATION REQUIRED TO PROVIDE ACCESS AND ALLOW FOR CONTINUOUS CONSTRUCTION OF DUCT BANKS.
  - 2) INSTALL PROPOSED WORK ABOVE DUCT BANKS FOLLOWING DUCT BANK CONSTRUCTION.
  - 3) AIRPORT OVERLOOK DRIVE WILL BE A CITY OF CHARLOTTE AVIATION DEPARTMENT OWNED AND MAINTAINED ROADWAY, NOT PLATTED IN PUBLIC ROW.
  - 4) AIRCRAFT TO BE PROVIDED BY OTHERS.

SEE SHEET 7 FOR -L- PROFILE  
SEE SHEET 9 FOR -DR2- PROFILE  
SEE SHEET 3B-1 FOR SITE LAYOUT  
SEE SHEET 3B-2 FOR SITE GRADING DETAILS

MATCHLINE -L- STA. 39+00 (SEE SHEET 6)

REVISIONS		DATE
1	ADDENDUM NO. 1 - REVISED AIRCRAFT DISPLAY AREA	05/15/2023
2	ADDENDUM NO. 2 - ADDED AIRCRAFT DISPLAY NOTE	05/25/2023
3		
4		
5		

DESIGNED BY: STV ENGINEERS	PROJECT ENG.: JNJ	PROJECT NO.: 4020901837-5
DRAWN BY: MKA	CHECKED BY: GHM	DATE ISSUED: 05/15/2023

AIRPORT OVERLOOK DRIVE	
PLAN	
FILE NAME:	SCALE: 1"=40'

SHT.	5
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Plans Prepared By:

**STV Engineers, Inc.**  
900 West Trade St., Suite 715  
Charlotte, NC 28202  
NC License Number F-0991

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

5/24/2023 5/24/2023

**TALBERT, BRIGHT & ELLINGTON**  
ENGINEERING & PLANNING CONSULTANTS  
3525 WHITEHALL PARK DRIVE, SUITE 210  
CHARLOTTE, NORTH CAROLINA 28273  
PHONE: 704-426-6070 FAX: 704-426-6080  
NC LICENSE NO. C-1163



SUMMARY OF EARTHWORK  
IN CUBIC YARDS

CHAIN	FROM STATION	TO STATION	SIDE	UNCL. EXCAVATION	UNDERCUT	EMBT +%	BORROW	WASTE
-L-	22+00.00	48+20.00	LT & RT	17,005		491		16,514
SUBTOTAL SUMMARY 1				17,005		491		16,514
-DR1-	10+12.00	12+00.00	LT & RT	313		435	122	
-DR2-	10+54.31	12+63.00	LT & RT	82		52		30
SUBTOTAL SUMMARY 2				395		487	122	30
OVERLOOK SITE				21,265				21,265
SUBTOTAL SUMMARY 3				21,265				21,265
TAIL DITCH				1,790		1		1,789
SUBTOTAL SUMMARY 4				1,790		1		1,789
TOTAL				40,455		979	122	39,598
EST. SHOULDER MATERIAL						18	18	
LOSS DUE TO CLEARING AND GRUBBING				-8,278				-8,278
ADDITIONAL UNDERCUT								
WASTE IN LIEU OF BORROW							-140	-140
PROJECT TOTAL				32,177		997		31,180
ESTIMATE 5% TOPSOIL FOR BORROW PITS								
GRAND TOTAL				32,177		997		31,180
SAY				32,500		1,000		31,500

\* PROVIDED FOR INFORMATION ONLY. CONTRACTOR TO VERIFY.

NOTE: QUANTITIES ARE APPROXIMATE ONLY. THE CONTRACTOR WILL PROVIDE THE RESIDENT PROJECT REPRESENTATIVE AN INITIAL SURVEY PRIOR TO BEGINNING WORK AND A FINAL SURVEY TO BE USED TO COMPUTE THE FINAL QUANTITIES FOR WHICH THE CONTRACTOR WILL BE PAID. THE INITIAL SURVEY, FINAL SURVEY AND QUANTITY CALCULATIONS ARE INCIDENTAL TO UNCLASSIFIED EXCAVATION.

REVISIONS		DATE
1	ADDENDUM NO. 2 - REVISED EARTHWORK NOTE	05/25/2023
2		
3		
4		
5		

DESIGNED BY: STV ENGINEERS	PROJECT ENG.: JNJ
PROJECT NO.: 4020901837-5	DRAWN BY: MKA
CHECKED BY: GHM	DATE ISSUED: 05/15/2023



AIRPORT OVERLOOK DRIVE	SCALE: NTS
ROADWAY SUMMARY	
FILE NAME:	

SHT.  
30-1

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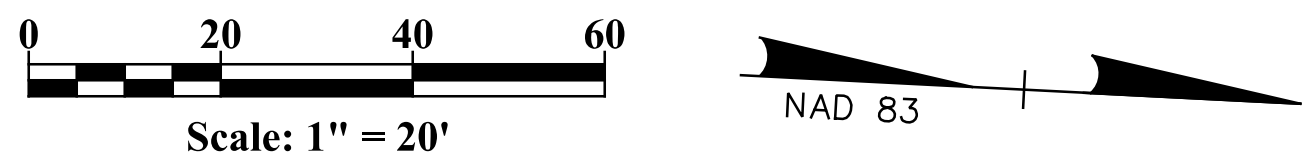


TABLE 'A' CIRCUITRY CONDUCTOR CONDUIT TYPE & SIZE			
PLAN SYMBOL	DESCRIPTION		
8	2 #8 Ø 1 #10G 3" P	2 AWG SIZE 8 CONDUCTOR (BK & RD) 1 AWG SIZE 10 GROUNDING CONDUCTOR 3" PVC CONDUIT	
*8	2 #8 Ø 1 #10G	2 AWG SIZE 8 CONDUCTOR (BK & RD) 1 AWG SIZE 10 GROUNDING CONDUCTOR	

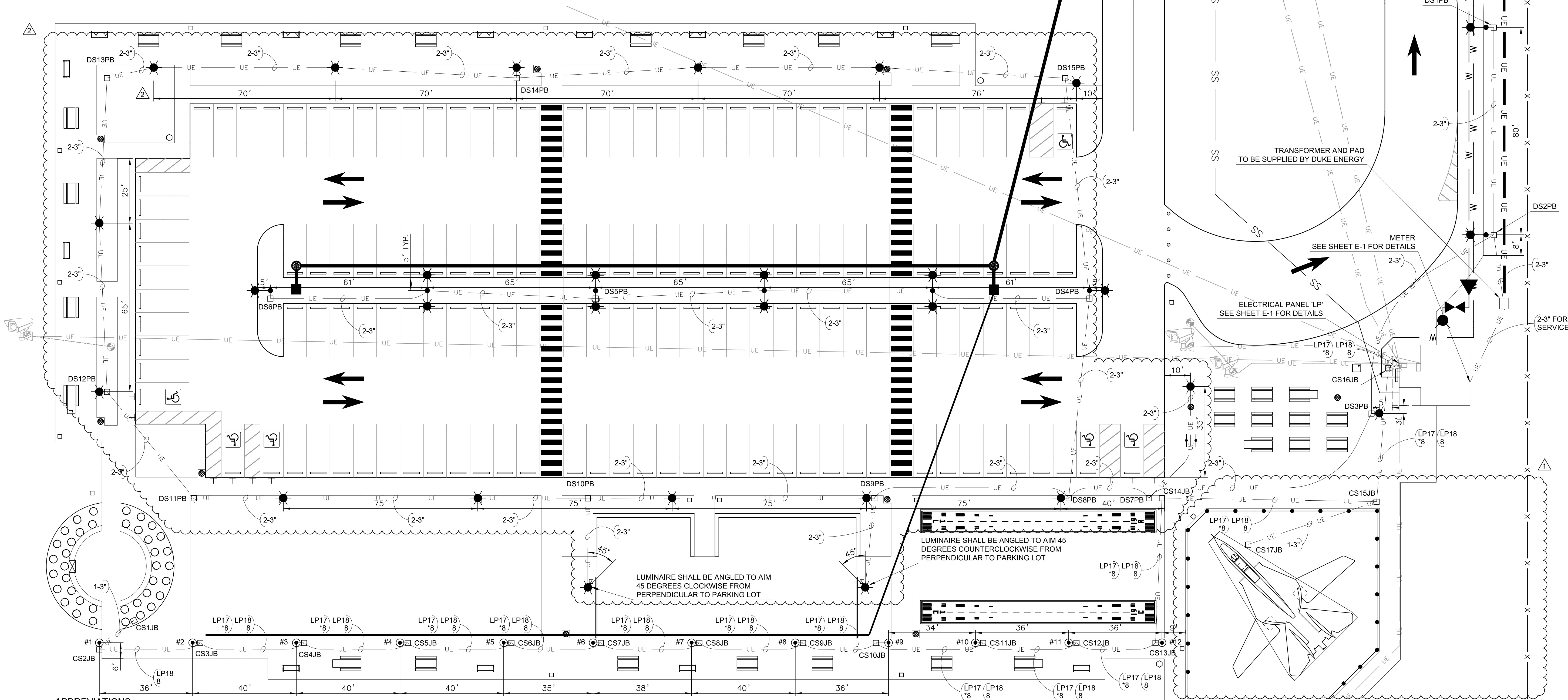
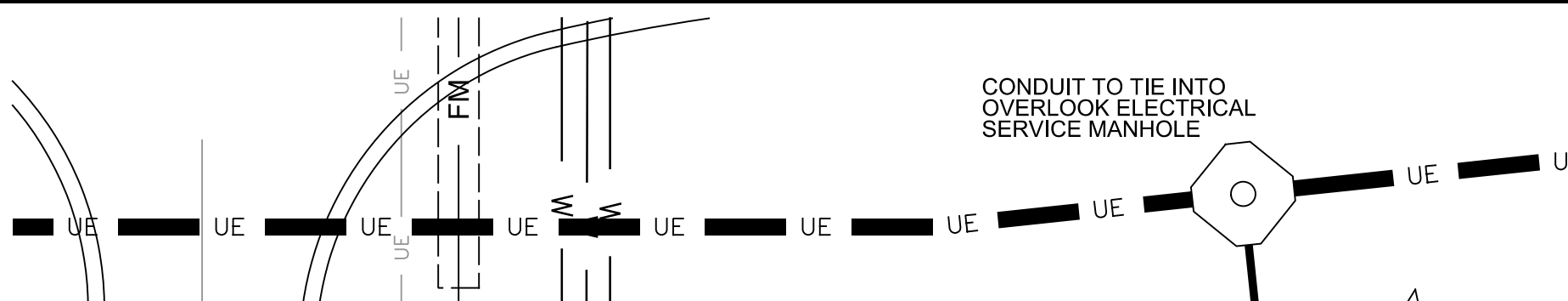
DUKE SUPPLIED LUMINAIRE/POLE SCHEDULE						
SYMBOL	LUMINAIRE	WATTAGE	MOUNTING HEIGHT	COLOR	POLE	ARM(S)
	ROADWAY LED	110W	20'	BLACK	STYLE A	TYPE III
	ENTERPRISE LED	50W	12'	BLACK	STYLE A	TYPE III

- NOTES:
- ALL LIGHT POLES/BOLLARDS ARE OFFSET 1' FROM EDGE OF NEAREST SIDEWALK UNLESS OTHERWISE NOTED.
  - BOLLARD LIGHTS SHALL BE TIED FROM ELECTRICAL PANEL TO PHOTOCELL FOR DUSK TO DAWN CONTROL. (SEE SHEET E-1 FOR DETAILS)
  - ALL ROADWAY/PEDESTRIAN LIGHT POLES SHALL HAVE 1-3" CONDUIT FROM LIGHT POLE TO NEAREST ELECTRICAL PULLBOX/JUNCTION BOX.
  - BOLLARD LIGHTS SHALL BE INSTALLED ON A CONCRETE BASE WITHIN THE SIDEWALK. (SEE SHEET 3A-9 FOR DETAIL)
  - CONTRACTOR SHALL INSTALL ALL DUKE SUPPLIED PULLBOXES. COORDINATE WITH YTULO EVANS 803-835-7945 TWO (2) WEEKS IN ADVANCE FOR DELIVERY OF PULLBOXES.

CONTRACTOR SUPPLIED LIGHTING SUMMARY	
CONCRETE BOLLARD LIGHTING	12
ELECTRICAL JUNCTION BOX	17
6" ELECTRICAL CONDUIT (LINEAR FEET)	650
3" ELECTRICAL CONDUIT (LINEAR FEET)	5000
2 AWG SIZE 8 CONDUCTOR (BK & RD)	700
1 AWG SIZE 10 GROUNDING CONDUCTOR	700

DUKE SUPPLIED LIGHTING SUMMARY	
ROADWAY LUMINAIRES	12
PEDESTRIAN LUMINAIRES	17
STYLE A POLE	25
6' LIGHTING ARMS	12
ELECTRICAL PULLBOX	15

LEGEND	
	PARKING LOT LIGHTING (6' ARM, 20' MH, 110W LED)
	PARKING LOT TWIN LIGHTING (6' ARMS, 20' MH, 110W LED)
	PEDESTRIAN LIGHTING (TYPE III DIST, 12' MH, 50W LED)
	CONCRETE BOLLARD LIGHTING (3.5' HEIGHT, 40W LED)
	ELECTRICAL PULLBOX/JUNCTION BOX
	UNDERGROUND ELECTRICAL CONDUIT, NUMBER OF CONDUITS (2), SIZE OF CONDUIT (3")
	PROPOSED FEEDER CIRCUIT CONTROL SYSTEM (LP), CIRCUIT (LP17 (17) PLAN SYMBOL (8) SEE TABLE A, THIS SHEET
	8' CHAIN LINK FENCE
	WATER FOUNTAIN
	POST & RING BIKE RACK
	TRASH RECEPTACLE
	BENCH
	PICNIC TABLE
	ACCESSIBLE PICNIC TABLE
	FLIGHT 1016 MONUMENT
	SIGN
	REMOVABLE BOLLARD
	BLUE LIGHT CALL STATION



ABBREVIATIONS	
G	GROUND
Ø	PHASE
PVC	PVC SCHEDULE 40 CONDUIT
DS3PB	DUKE SUPPLIED #3 PULL BOX
CS3JB	CONTRACTOR SUPPLIED #3 JUNCTION BOX

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North Carolina Professional Engineer  
Seal No. 038837  
Date: 05/15/2023  
F. D. Young

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NC LICENSE NO. C-1163

REVISIONS		DATE
1	ADDENDUM NO. 1 - REVISED AIRCRAFT DISPLAY AREA	05/15/2023
2	ADDENDUM NO. 2 - REVISED DUKE SUPPLIED PULLBOX DESIGN	05/25/2023
3		
4		
5		

DESIGNED BY: STV ENGINEERS	PROJECT ENG.: JNJ	PROJECT NO.: 4020901837-5	DRAWN BY: KAM	CHECKED BY: MCG	DATE ISSUED: 05/15/2023
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**CLT**  
CHARLOTTE DOUGLAS  
INTERNATIONAL AIRPORT

AIRCRAFT OVERLOOK DRIVE

LIGHTING

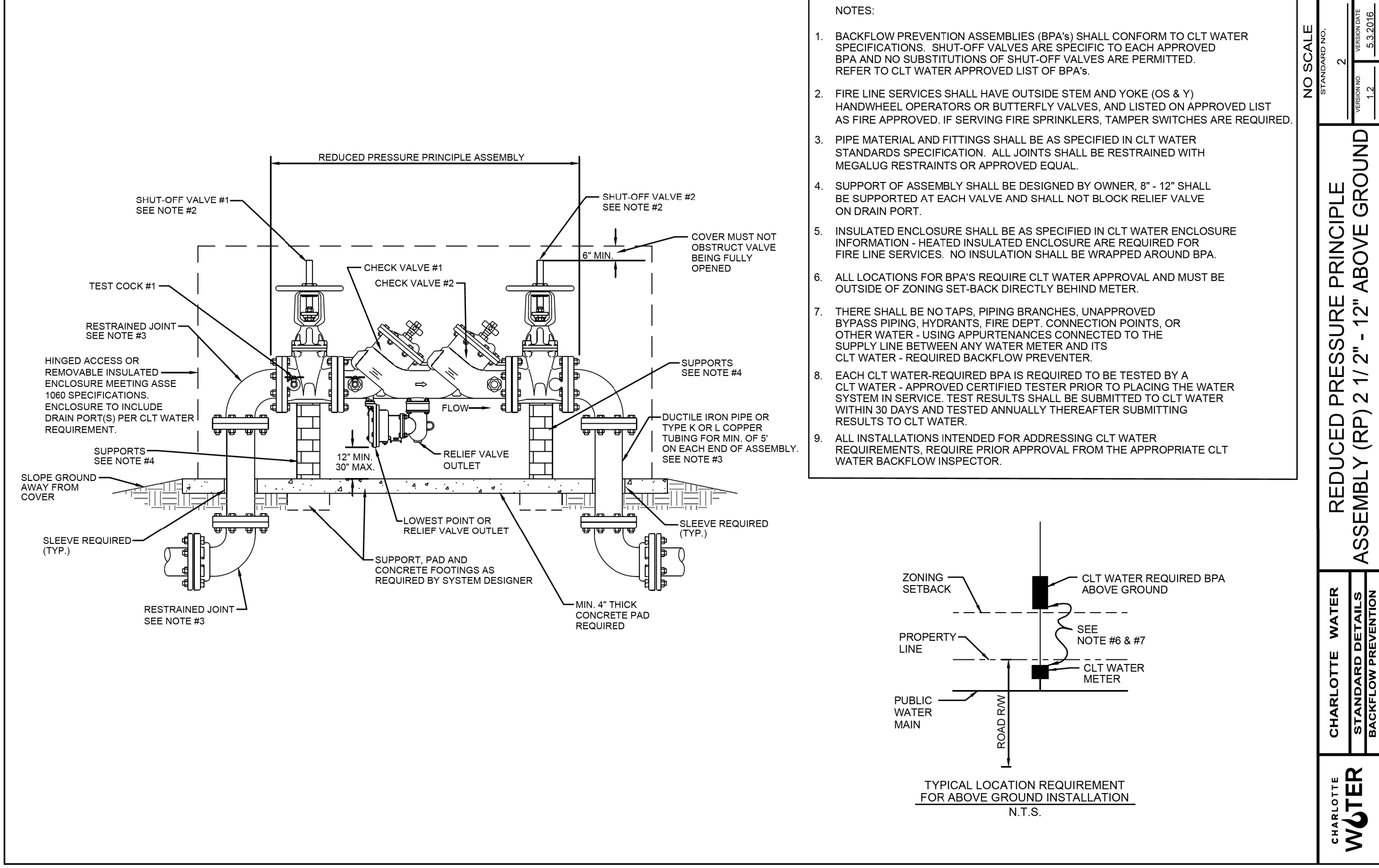
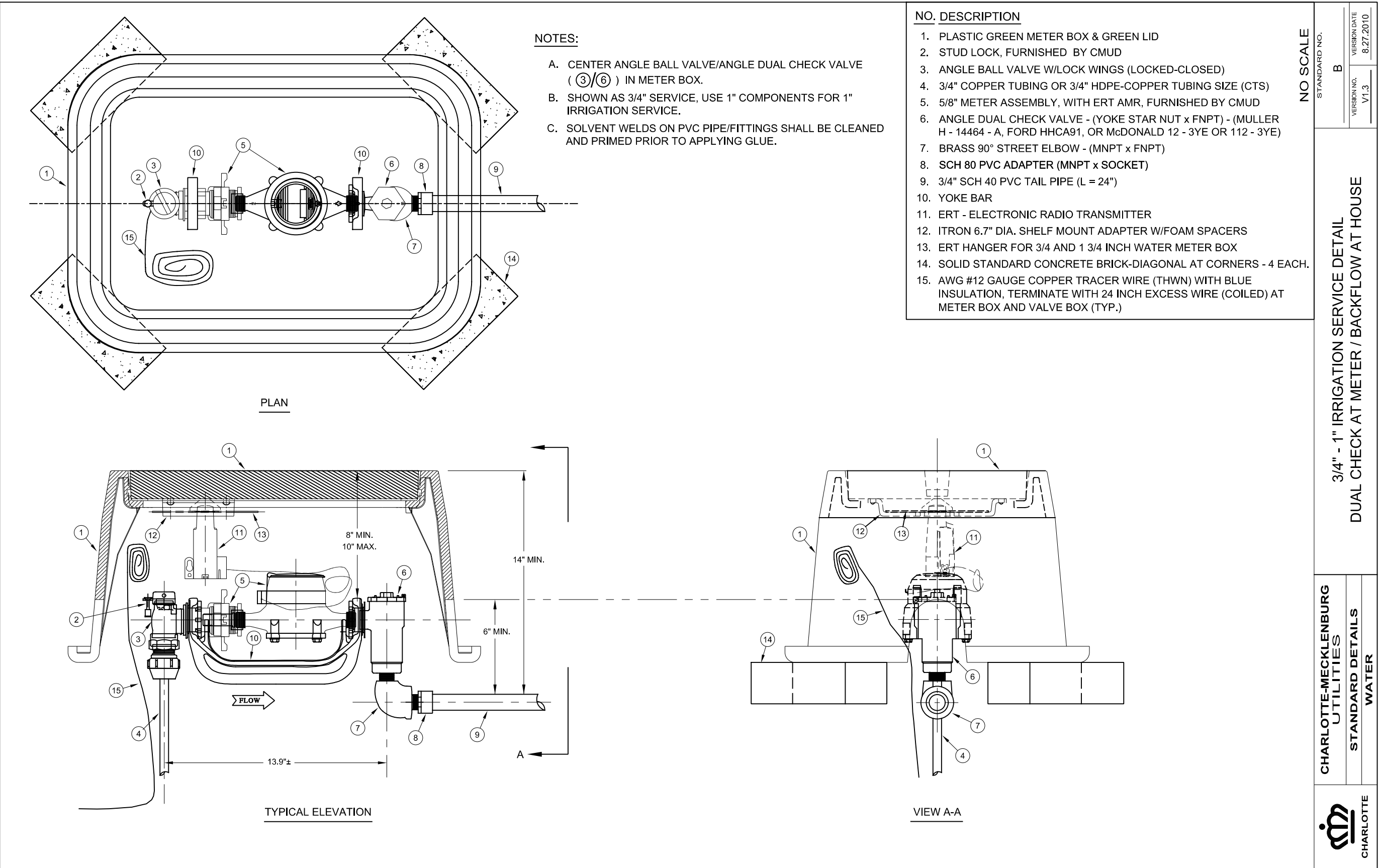
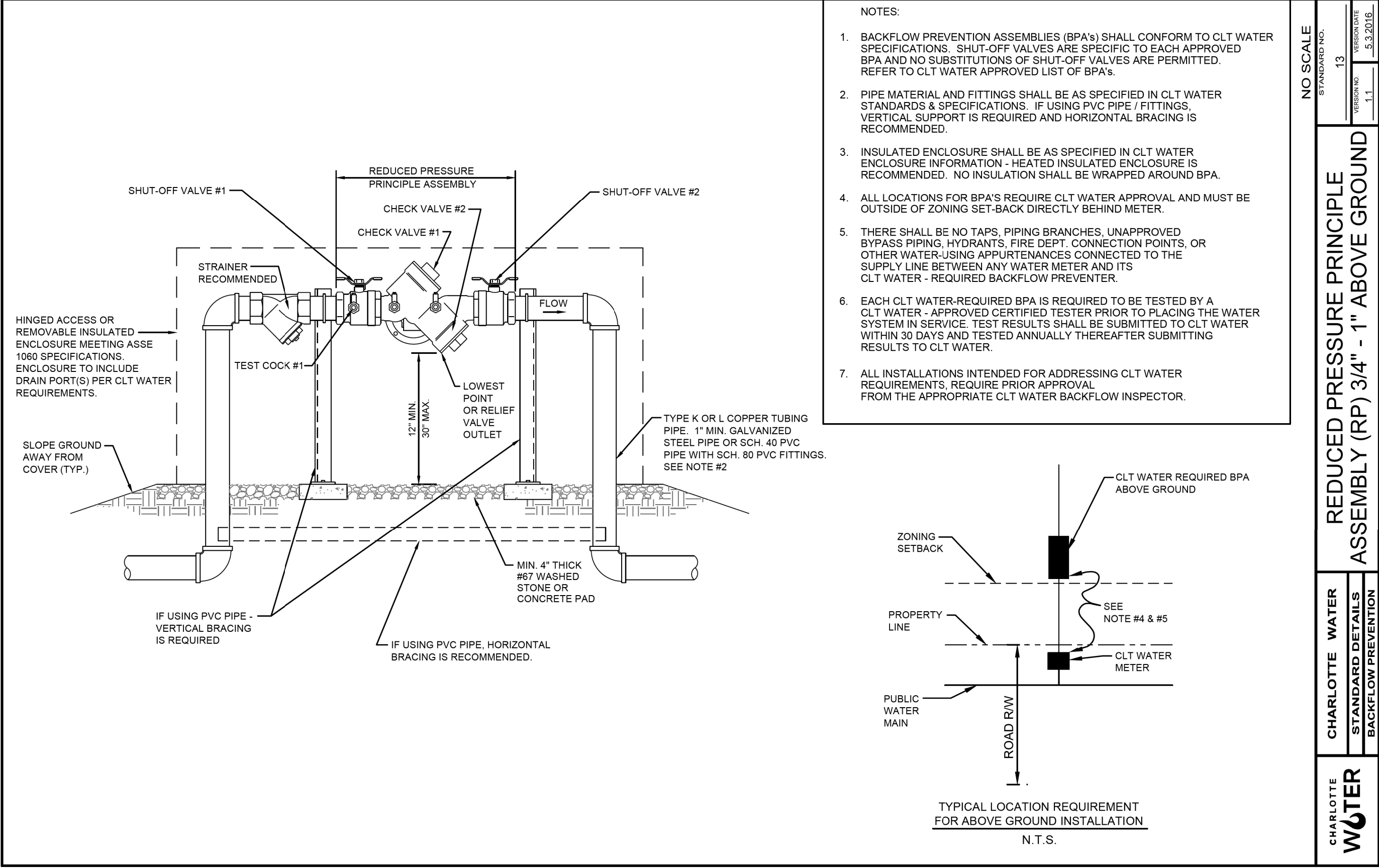
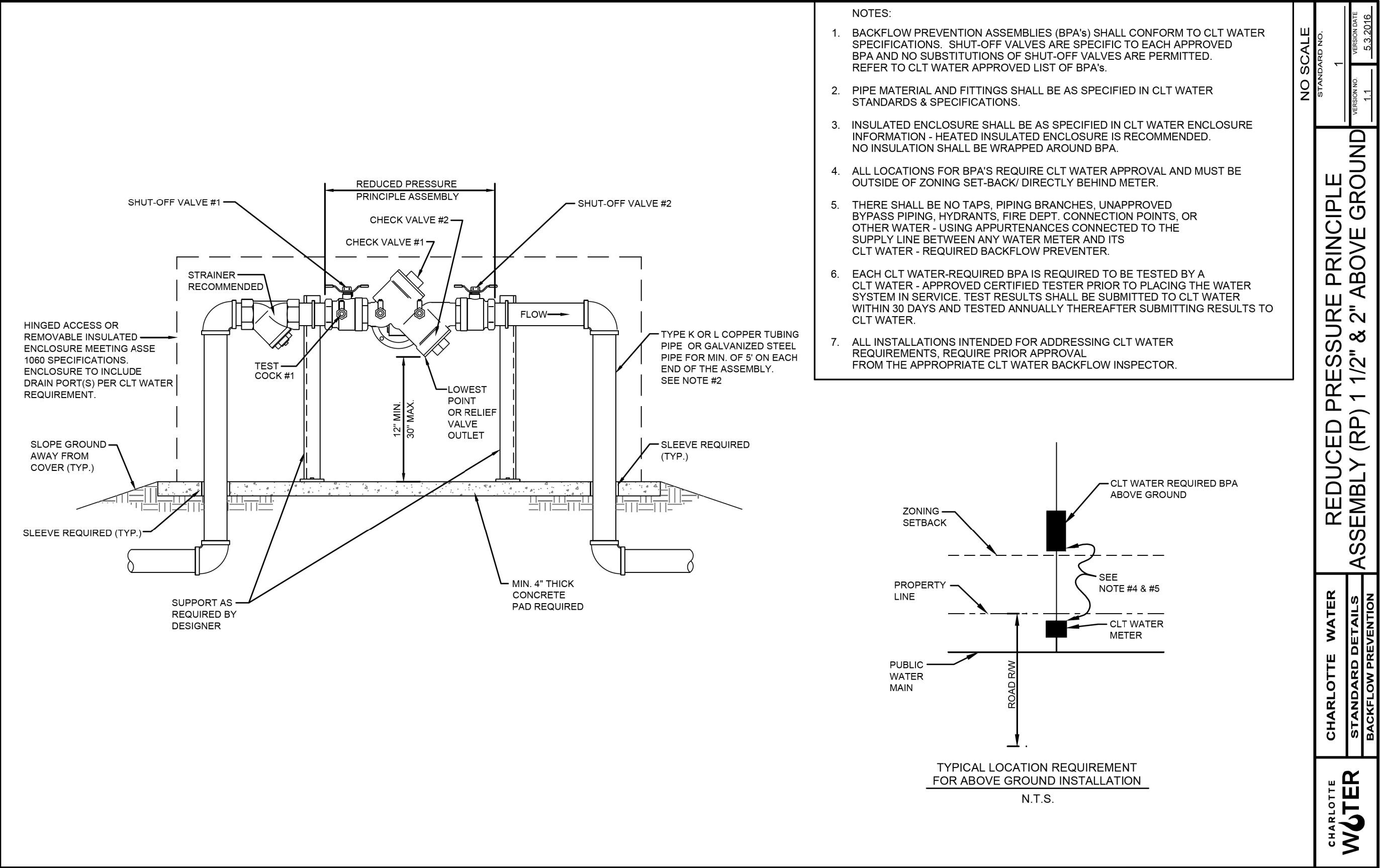
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SHT. LE-1





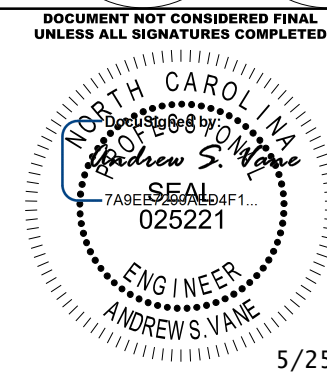




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5/25/2023

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REVISIONS					
DATE	5/24/23				

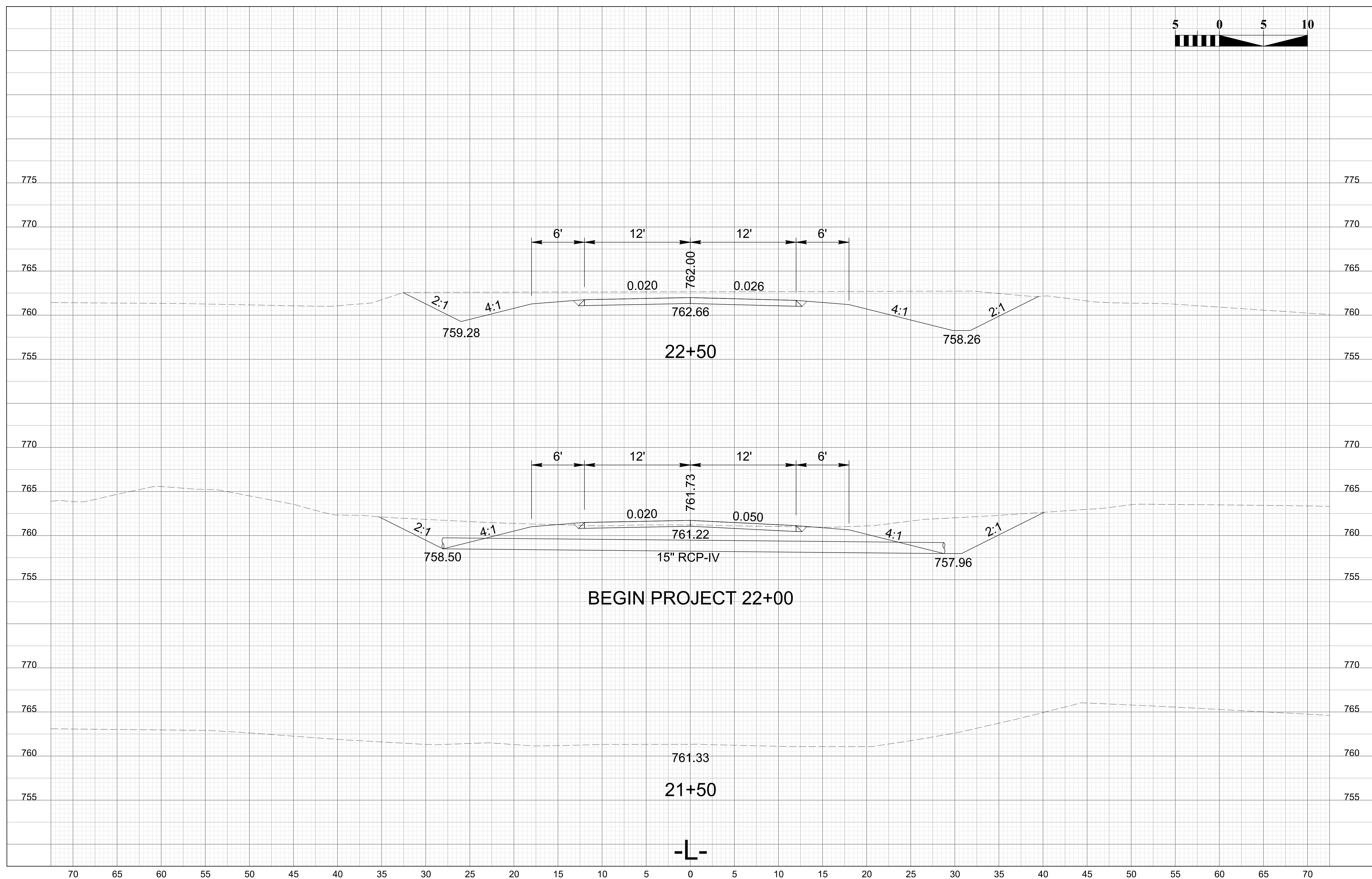
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PROJECT ENG.:	
PROJECT NO.:	4020901837-5
DRAWN BY:	SHM
CHECKED BY:	ASV
DATE ISSUED:	04/06/2023



AIRPORT OVERLOOK DRIVE	DETAILS
FILE NAME:	

SHT.  
U-14





REVISIONS		DATE
1	ADDENDUM NO. 2 - REVISED EARTHWORK NOTE	05/25/2023
2		
3		
4		
5		

DESIGNED BY: STV ENGINEERS	PROJECT NO.: 4020901837-5
PROJECT ENG.: JNJ	DRAWN BY: MKA
CHECKED BY: GHM	DATE ISSUED: 05/15/2023




AIRPORT OVERLOOK DRIVE	SCALE: HORZ. 1"=5' - VERT. 1"=5'
CROSS SECTIONS	FILE NAME:

SHT.  
**X-1**

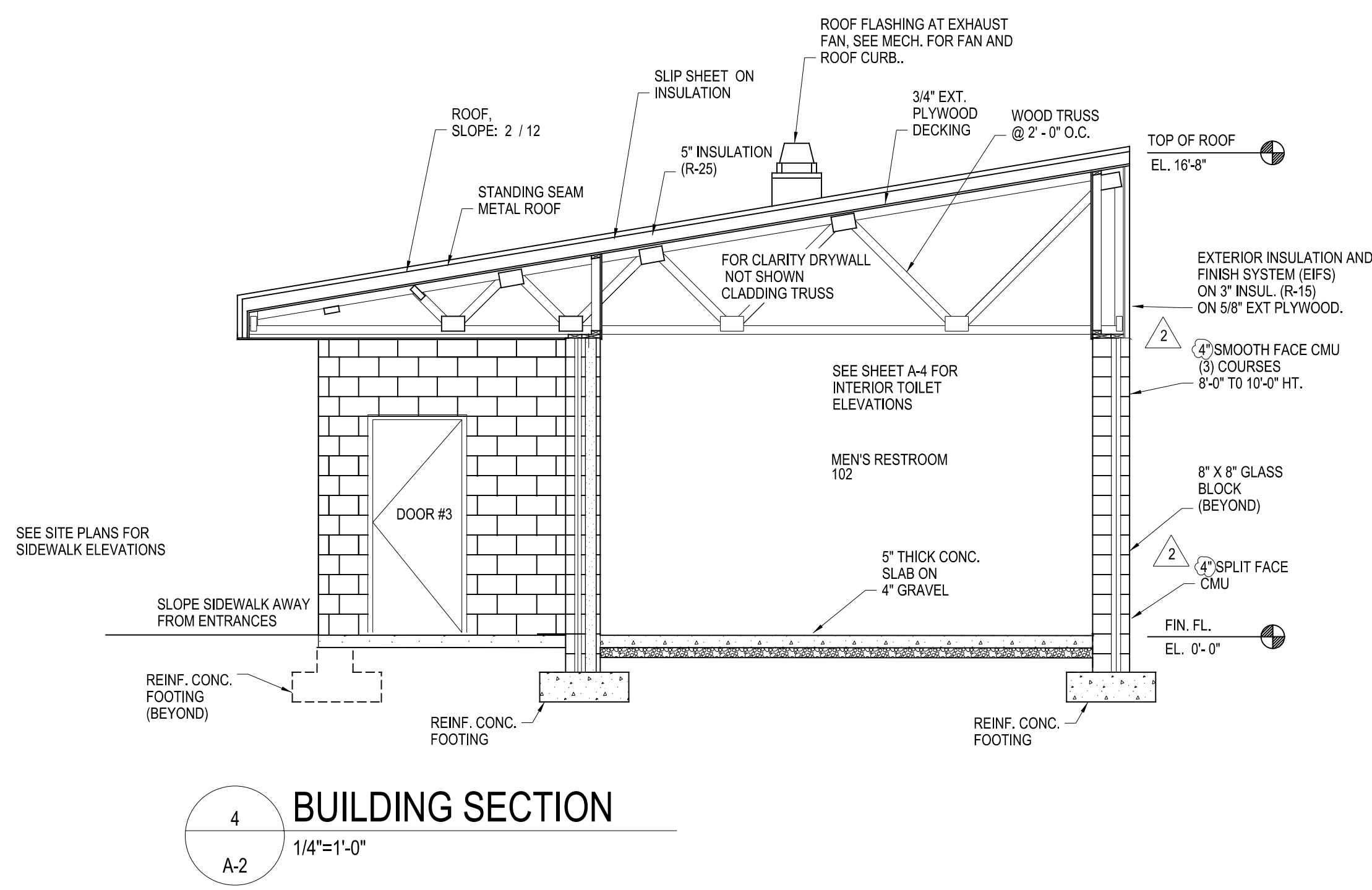
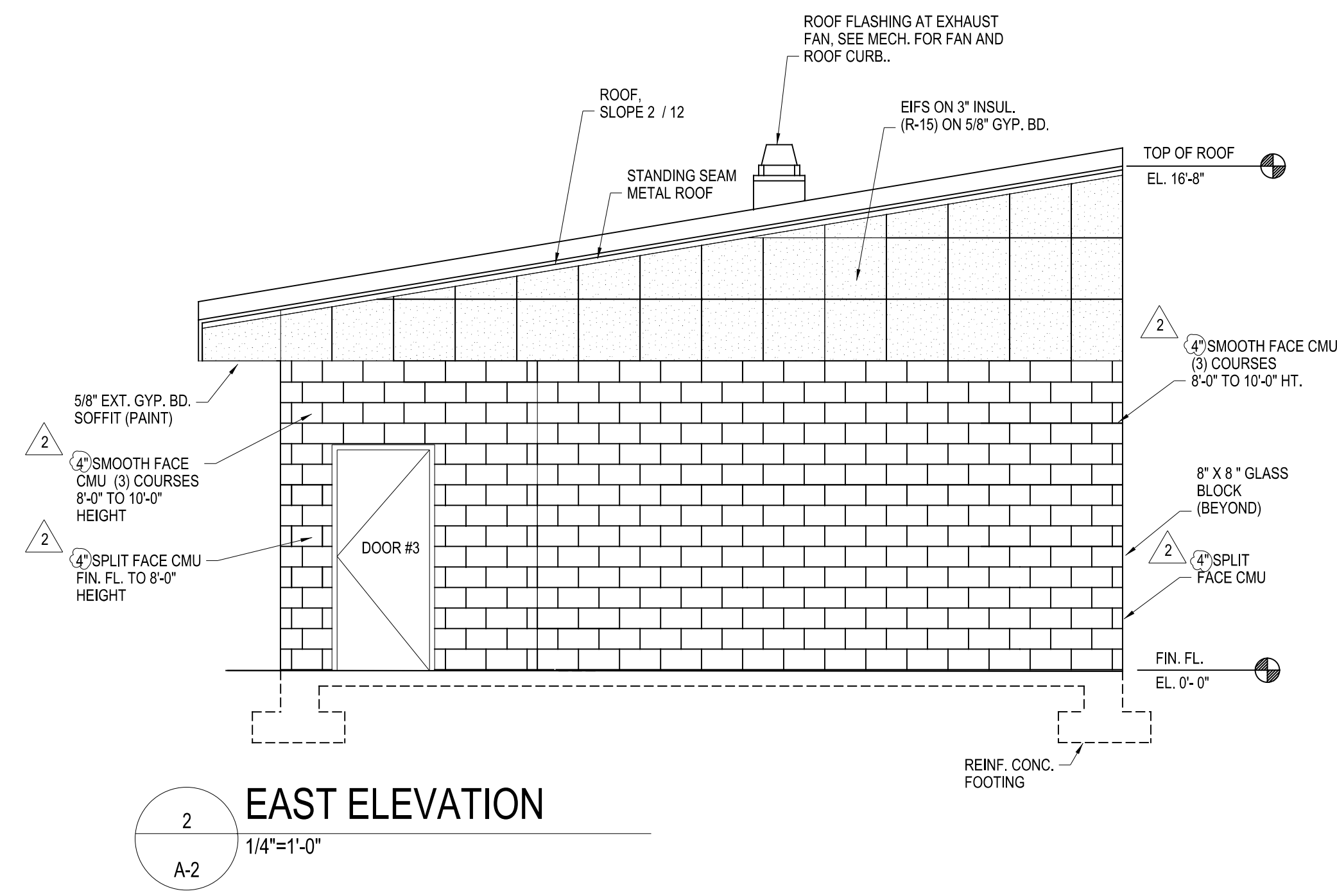
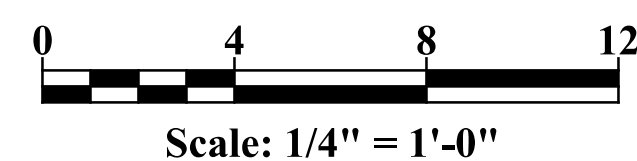
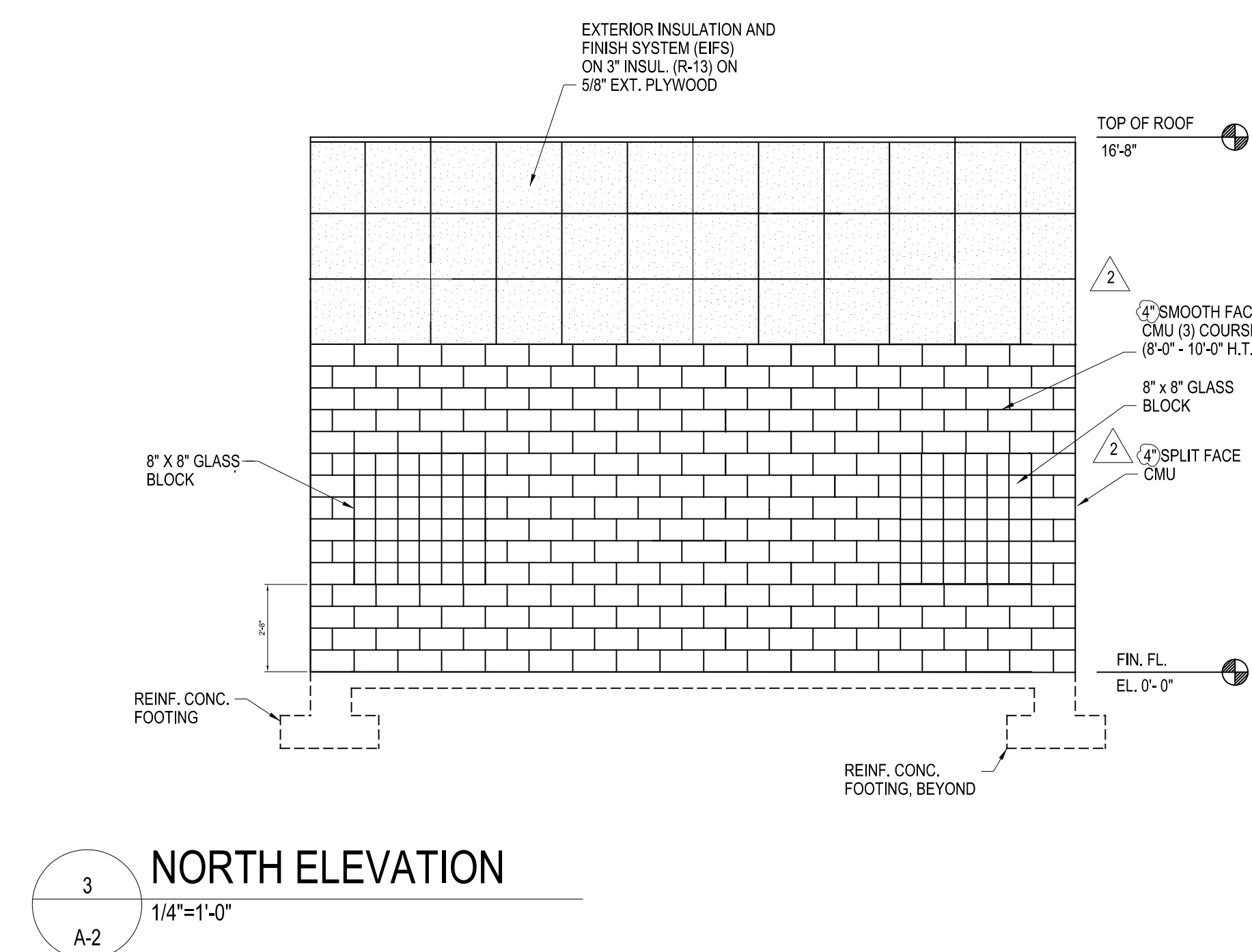
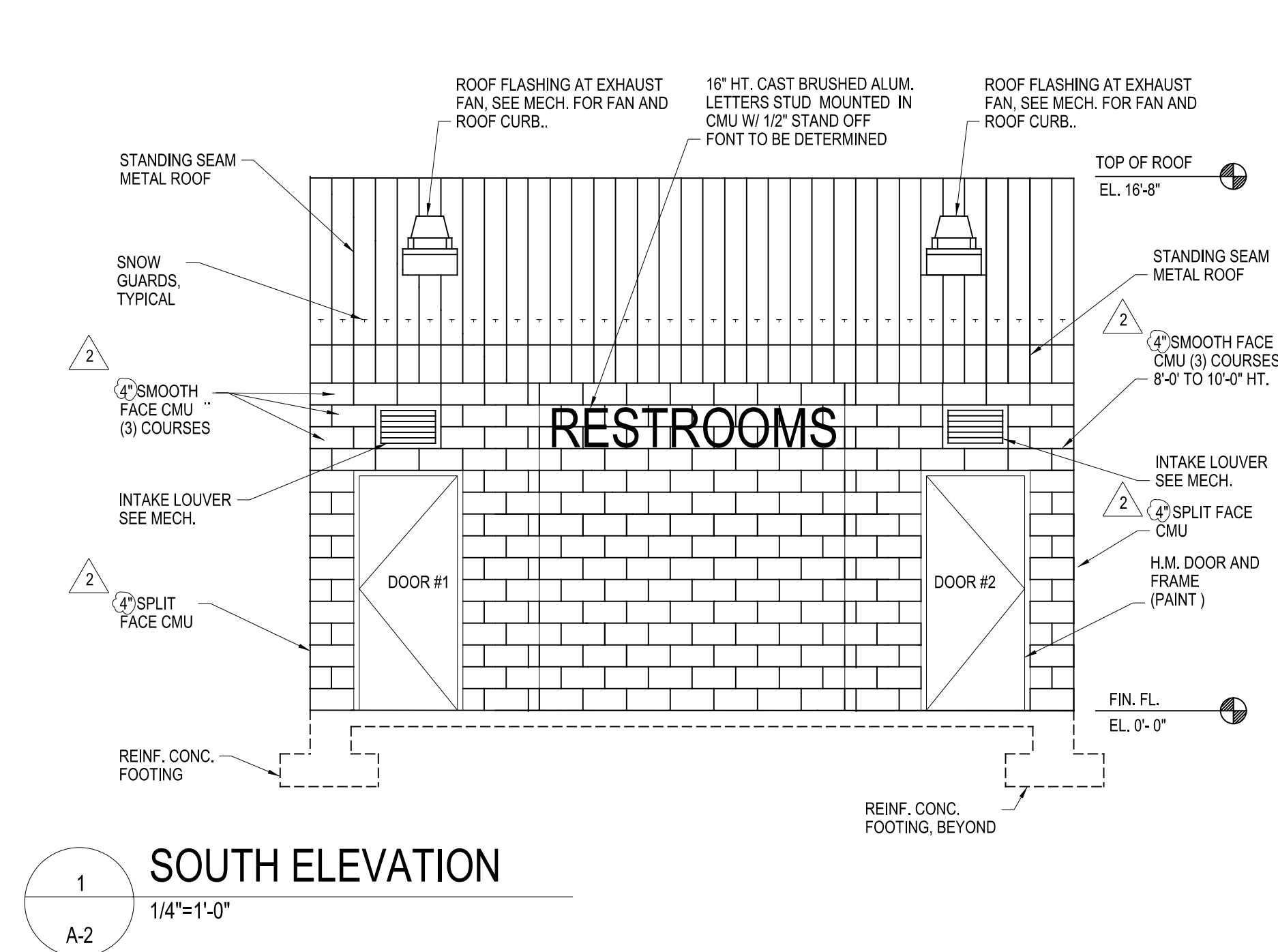
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REVISIONS	DATE
1	ADDED EXHAUST FANS, LOUVERS AND NOTES
2	CHANGED ALL CMU FROM 8" TO 4" CMU
3	
4	
5	

DESIGNED BY: STV ARCHITECTS	PROJECT NO.: 4020901837-5	CHECKED BY: GHM
PROJECT ENG: JNU	DRAWN BY: HDS	DATE ISSUED: 05/15/2023



AIRPORT OVERLOOK DRIVE
TOILETS EXTERIOR ELEVATIONS
SCALE: 1/4" = 1'-0"

SHT.
A-2

Plans Prepared By:

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STV ARCHITECTS, INC.  
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5/24/2023

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Geotechnical Engineering Report  
CLT NEAT – Airport Overlook Drive Relocation  
Charlotte, North Carolina  
S&ME Project No. 1335-19-012

PREPARED FOR:

**STV Engineers, Inc.**  
**900 W. Trade Street, Suite 715**  
**Charlotte, North Carolina 28208**

PREPARED BY:

**S&ME, Inc.**  
**9751 Southern Pine Boulevard**  
**Charlotte, North Carolina 28273**

**March 9, 2023**





March 9, 2023

STV Engineers, Inc.  
900 W. Trade Street, Suite 715  
Charlotte, North Carolina 28208

Attention: Mr. John Johnson, P.E.

Reference: **Geotechnical Engineering Report**  
**CLT NEAT – Airport Overlook Drive Relocation**  
Charlotte, North Carolina  
S&ME Project No. 1335-19-012  
NC PE Firm License No. F-0176

Dear Mr. Johnson:

S&ME, Inc. has completed the subsurface exploration for the Old Dowd Road relocation portion of the Charlotte Douglas International Airport's North End-Around Taxiway project. This study was performed in general accordance with our proposal No. 34-1800303 dated August 31, 2018. The purpose of this study was to determine the subsurface conditions along the proposed roadway alignment so that those conditions can be evaluated regarding the appropriate foundation and construction considerations for the new roadway. This report presents the findings of our investigation and foundation recommendations.

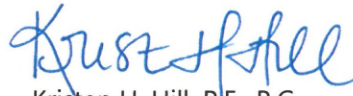
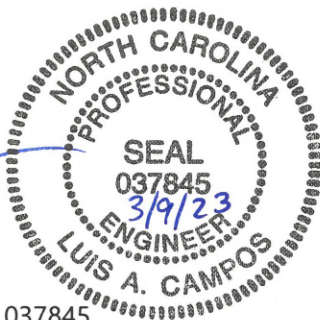
S&ME appreciates the opportunity to assist you during this phase of the project. If you should have any questions concerning this report or if we may be of further assistance, please contact us.

Sincerely,

S&ME, Inc.



Luis A. Campos, P.E.  
Project Engineer  
NC Registration No. 037845



Kristen H. Hill, P.E., P.G.  
Principal Geotechnical Engineer



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## 1.0 Project Overview

### 1.1.1 Project Description

Project information is based on telephone, e-mail correspondence between John Johnson of STV and Luis Campos of S&ME between April 2018 and December 2022.

As part of the Charlotte Douglas International Airport North End-Around Taxiway (NEAT) project, STV is providing design services for the relocation of Overlook Drive. The relocated Overlook Drive (-L-) will begin at the existing Overlook Drive to the west of the overlook area and east of the rail lines and runway 18R/36L. It will continue west and curve north to tie into Old Dowd Road. The new roadway section will be about 2,600 feet long. In addition, three driveways located on the east side of the mainline (-DR1-, -DR2-, -DR3-) are included in this investigation.

The new alignment typical section is a two-lane roadway. The alignment follows previously graded/filled areas, and will require up to 50 feet of fill to achieve design grades.

The following table presents the traffic loading information for -L- provided by STV.

**Table 1-1: Pavement Design Basis**

Design Input	Design Value	Design Input	Design Value
ADT year 2021	3,700	Directional Split	55
ADT year 2040	6,500	Number of Lanes	2
Tractor Trailer Semi Truck (TTST), %	1	Pavement Design Life (years)	20
Duals (%)	1	Curb & Gutter	Partial
Design Hourly Volume (DHV)	10		

In addition to the provided traffic loading information, we understand that the new roadway may be used for earthwork hauling during construction of a future project. Talbert, Bright, and Ellington indicated that this would result in approximately 84,000 additional dump truck trips.

We understand that the roadways accessing the future RTR and ASR sites may consist of gravel.

Additionally, we understand that the Overlook Site will have parking space for 137 vehicles, and will also include a drive for busses and food trucks. However, anticipated daily traffic counts have not been provided. This area will receive between 10 and 30 feet of fill to reach design grades.

Also, the Overlook Site will contain a small restroom building measuring about 25 feet by 30 feet at the terminus of -DR3-. This structure is planned to bear on about 10 feet of newly placed structural fill at around elevation 777 feet. Although structural details have not been provided, we anticipate this will consist of masonry construction with maximum column loads of 50 kips and maximum wall loads of up to 4 kips/linear foot.



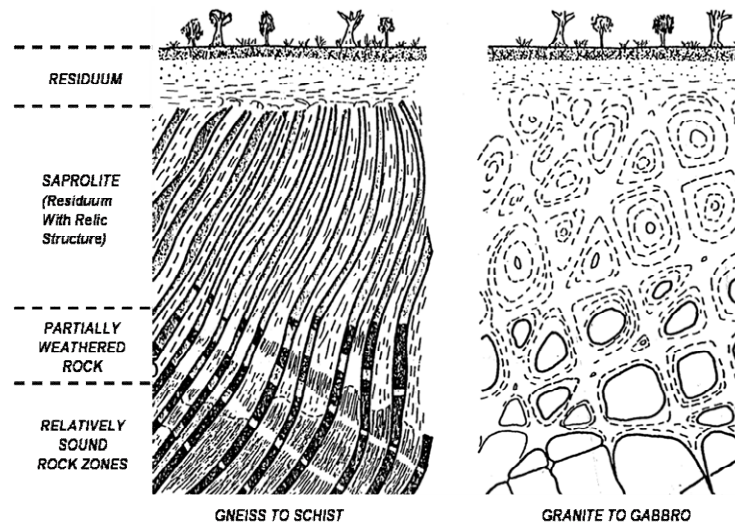
### *1.1.2 Site Description & Geology*

The project site is located in Charlotte, Mecklenburg County, North Carolina, with the alignment extending from Overlook Drive (southern limits) to Old Dowd Road (northern limits), roughly between the existing Overlook Area and Railroad lines to the east of the 18R/36L runway. See Figure 1 in the Appendix for the approximate site location. The project appears to have been used during various construction phases at the airport beginning around 2006. The original topography sloped from Overlook Drive down towards a drainage feature to the west of the proposed tie in of proposed Overlook Drive and Old Dowd Road. A former pond that has been filled in is located along the alignment.

The project site is located in the Charlotte Belt of the Piedmont Physiographic Province of North Carolina. The Piedmont Province generally consists of well-rounded hills and ridges, which are dissected by a well-developed system of draws and streams. The Piedmont Province is predominantly underlain by metamorphic rock (formed by heat, pressure and/or chemical action) and igneous rock (formed directly from molten material), which were initially formed during the Precambrian and Paleozoic eras. The volcanic and sedimentary rocks deposited in the Piedmont Province were the host for the metamorphism and were changed to gneiss and schist. The more recent Paleozoic era had periods of igneous emplacement, with at least several episodes of regional metamorphism resulting in the majority of the rock types seen today.

The topography and relief of the Piedmont Province have developed from differential weathering of the igneous and metamorphic rock. Because of the continued chemical and physical weathering, the rocks in the Piedmont Province are now generally covered with a mantle of soil that has weathered in place from the parent bedrock. These soils have variable thicknesses and are referred to as residuum or residual soils. The residuum is typically finer grained and has higher clay content near the surface because of the advanced weathering. Similarly, the soils typically become coarser grained with increasing depth because of decreased weathering. As the degree of weathering decreases, the residual soils generally retain the overall appearance, texture, gradation and foliations of the parent rock. Alluvial soils, consisting of interbedded sands, silts, and clays, are common in the floodplain along rivers and creeks in the Piedmont.

The boundary between soil and rock in the Piedmont is not sharply defined. A transitional zone termed "Weathered Rock" or "Partially Weathered Rock" is normally found overlying the parent bedrock. Weathered Rock (WR) is defined for engineering purposes as residual material with Standard Penetration Resistances (N-values) exceeding 100 blows per foot. The transition between hard/dense residual soils and WR occurs at irregular depths due to variations in degree of weathering. A depiction of typical weathering profiles in the Piedmont Province is presented in Figure 1-1.



**Figure 1-1: Typical Piedmont Weathering Profiles**

## **2.0 Exploration Procedures**

### **2.1 Field Testing**

In order to explore the general subsurface conditions along the proposed roadway, twenty-eight (28) soil test borings were drilled to depths ranging from 5.5 to 59.7 feet in July 2021. Borings were generally performed along the left, right, and centerline of the alignment. The borings were advanced at the approximate locations shown on the Site Plan drawings (Figures 2 and 3) in the Appendix. The individual boring logs are referenced with northing and easting coordinates. Ground surface elevations indicated on the test logs were interpolated from the available topographic information.

Two drill rigs, a CME 550X and a CME-55, were used to advance the borings with hollow-stem, continuous flight augers. Mud rotary techniques were used in six of the borings due to difficulty with hollow-stem augers. Standard Penetration Test (SPT) split spoon sampling was performed at designated intervals in the soil test borings in general accordance with ASTM D1586 to provide an index for estimating soil strength and relative density or consistency. SPT tests were performed with a hydraulic automatic hammer. In conjunction with the SPT testing, samples are obtained for soil classification purposes. Representative portions of each soil sample were placed in sealed containers and taken to our laboratory.

Water level measurements were attempted in the borings at the termination of drilling activities. All borings were backfilled with soil cuttings to the ground surface, utilizing a hole closure device, on or before July 23, 2021.



## **2.2 Laboratory Testing**

A staff professional visually examined each sample in general accordance with the American Association of State Highway and Transportation Officials (AASHTO) to estimate the distribution of grain sizes, plasticity, organic content, moisture condition, color, presence of lenses and seams and apparent geological origin. The results of the classifications, as well as the field test results, are presented on the individual boring logs included in the Appendix. Similar materials were grouped into strata on the logs. The strata contact lines represent approximate boundaries between the soil and rock types; the actual transition between the soil and rock types in the field may be gradual in both the horizontal and vertical directions.

Laboratory testing consisting of grain-size, Atterberg Limits, moisture content, and organic content tests were performed on representative soil samples to confirm visual soil classifications and estimate the engineering properties of the soils tested. Results of the laboratory testing are presented in Section 3.2 and are also included in the Appendix.

## **3.0 Subsurface Conditions and Laboratory Results**

### **3.1 Subsurface Conditions**

#### *3.1.1 Soil Properties*

Soils encountered during this investigation are separated into 2 categories: Artificial Fill soils and Residual soils.

Artificial Fill soils generally consisted of soft to very stiff silty clay (A-7-6), soft to medium stiff clayey silt (A-7-5), soft to hard sandy clay (A-6), very soft to hard sandy silt (A-4), loose to medium dense clayey sand (A-2-6), and very loose to very dense silty sand (A-2-4). The artificial fill soils were present in the borings except L\_4000. The artificial fill soils contained trace to moderate organic matter consisting of wood debris, trace asphalt, trace glass, and also cobble/boulder sized materials. The vertical extents of the artificial fill soils varied greatly from about 3 feet to 52 feet (approximate elevations ranging from 679.5 to 758.4). The artificial fill encountered in L\_2400, L\_4000LT, L\_4650LT, L\_4650, DR2\_1050, DR2\_1250, and portions of L\_3800LT and L\_4400LT were relatively dry. Organic contents in the samples ranged from 1.7 to 19.1 percent.

Residual soils generally consist of medium stiff to stiff clayey silt (A-7-5), soft to very stiff sandy clay (A-6), medium stiff to very stiff to hard sandy silt (A-4), and loose to very dense silty sand (A-2-4).

### 3.1.2 *Weathered Rock and Rock*

Weathered Rock was encountered in 18 of the 28 borings performed (L\_3000, L\_3400LT, L\_3400, L\_3600LT, L\_3600, L\_3700, L\_3800, L\_4000LT, L\_4000, L\_4200, L\_4400LT, L\_4400, L\_4600, L\_4650, DR1\_1050, DR2\_1050, DR2\_1250, and DR3\_1050). The weathered rock is derived from the underlying metamorphosed quartz diorite bedrock, and was encountered at depths ranging from about 3 to 52 feet (approximate elevations of 639.5 to 745.0 feet). Also, crystalline rock (SPT/auger refusal) was encountered in fourteen borings (L\_3400 LT, L\_3400, L\_3600, L\_3800LT, L\_3800, L\_4000LT, L\_4000, L\_4200, L\_4650LT, L\_4650, DR1\_1050, DR2\_1050, DR3\_1050, and DR3\_1250,) at depths ranging from 5.5 to 57 feet (approximate elevations of 634.5 to 741.6 feet).

### 3.1.3 *Groundwater*

Groundwater was measured in borings L\_3000 and L\_4400 at depths ranging from 24.9 to 27.5 feet below the existing ground surface (approximate elevations of 722.2 and 728.4 feet, respectively) at boring termination. Groundwater was not encountered in the remaining 26 borings at drilling termination. Please note that groundwater levels tend to fluctuate with seasonal and climatic variations, as well as with some types of construction operations.

## 3.2 **Laboratory Test Results**

Laboratory classification tests (moisture content, grain-size distribution, and Atterberg limits) were performed on selected soil samples. The results are summarized in Table 3-1 and are also presented in the Appendix.

**Table 3-1: Laboratory Index Testing Results**

Test Location	Sample Depth (feet)	AASHTO Classification	Natural Moisture Content (%)	Fines (%)	Liquid Limit	Plastic Index
DR2_1250	8.5 - 10	A-7-5	52.1	92.6	63	23
DR3_1050	6 - 7.5	A-6	18.5	56.4	39	15
L_2400	1 - 2.5	A-6	15.5	50.6	34	16
L_3000	18.5 - 20	A-7-5	34.2	58.1	48	18
L_3200	18.5 - 20	A-7-5	29.9	62.1	43	13
L_3400	13.5 - 15	A-7-6	17.9	54.4	43	20
L_4650LT	13.5 - 15	A-7-5	43.6	77.5	47	12

Due to the observed organic matter in the materials, additional organic content laboratory testing was performed on selected soil samples. The results are summarized in Table 3-2 and are also presented in the Appendix.

**Table 3-2: Laboratory Organic Content Testing Results**

Test Location	Sample Depth (feet)	Natural Moisture Content (%)	Organic Content (%)
DR3_1050	18.5 - 20	15.3	6.5
L_3000	6 - 7.5	21.8	9.8
L_3200LT	8.5 - 10	21.9	6.8
L_3400	3.5 - 5	23.9	8.7
	8.5 - 10	23.0	5.3
L_3600	8.5 - 10	27.2	19.1
L_3600 LT	3.5 - 5	18.7	4.8
L_4200	1 - 2.5	13.9	5.8
L-4400LT	3.5 - 5	26.0	8.2
L_4600	28.5 - 30	12.3	1.7
L_4650	6 - 7.5	37.0	4.5

### 3.3 Areas of Special Geotechnical Interest

**Soft Soils:** Soft cohesive soils (N-values less than 4) were encountered in the borings on the project and may impact embankment construction. These soils were found at the following locations:

Alignment	Stations (±)	Boring No.
-L-	30+11	L_3000
-L-	32+03	L_3200LT
-L-	32+04	L_3200
-L-	34+01	L_3400LT
-L-	34+01	L_3400
-L-	36+00	L_3600LT
-L-	43+85	L_4400LT
-L-	43+89	L_4400
-L-	45+44	L_4600
-L-	46+52	L_4650
-DR1-	14+53	DR1_1450
-DR3-	10+39	DR3_1050
-DR3-	11+64	DR3_1250



**Organic Soils:** Soils with varying degrees of organic matter were encountered in the borings on the project and may impact embankment construction and long-term performance. These soils were found at the following locations:

Alignment	Stations (±)	Boring No.
-L-	30+11	L_3000
-L-	32+03	L_3200LT
-L-	32+04	L_3200
-L-	34+01	L_3400LT
-L-	34+01	L_3400
-L-	36+00	L_3600LT
-L-	36+16	L_3600
-L-	41+99	L_4200
-L-	43+85	L_4400LT
-L-	43+89	L_4400
-L-	46+52	L_4650
-DR3-	10+39	DR3_1050

**Artificial Fill Soils with Cobbles and Boulders:** Artificial fill that containing boulders and cobbles could impact long term embankment performance. These soils were found at the following locations:

Alignment	Stations (±)	Boring No.
-L-	26+26	L_2600
-L-	28+39	L_2800
-L-	36+16	L_3600
-L-	37+01	L_3700
-L-	38+00	L_3800LT
-L-	43+89	L_4400
-L-	45+44	L_4600
-DR1-	14+53	DR1_1450
-DR3-	10+39	DR3_1050

**Pond:** One area where a pond was previously located is noted at the following locations:

Alignment	Stations (±)	Boring No.
-L-	36+00 to 38+00	L_3700



## 4.0 Recommendations

### 4.1 Roadway Recommendations

#### 4.1.1 Slope & Embankment Stability

**Slope Design:** We recommend that all slopes be constructed at a ratio of 2:1 (H:V) or flatter. Based on the roadway cross sections, this is planned for the fill slopes. Slope stability analyses were performed based on the results of laboratory testing, estimated soil properties, and the slope geometries from the cross sections provided to us by STV. A critical geometry was analyzed as shown in Figure A in the Appendix, taken at Station 36+00 -L-. The analyzed slope achieves a stability factor of safety at least 1.3.

**Fills:** Based on the roadway cross sections, fill will be required to construct roadway embankments. New fills should be placed in accordance with NCDOT Standard Specification Section 235. Embankment materials should be spread uniformly in successive, approximately horizontal layers of not more than 10-inch loose lifts. Each layer shall be compacted in accordance with Subarticle 235-3(C).

**Settlement:** Based on the proposed fill depths indicated on the roadway cross sections (up to 50 feet) it is estimated that settlement will occur due to compression of the underlying foundation soils in addition to settlement within the newly placed embankment materials due to compression under their own weight. We recommend that for fill slopes taller than 25 feet, a waiting period of 30 days should be provided to allow for embankment settlement to occur prior to pavement construction. This waiting time can be reduced by monitoring and verifying the settlement via settlement hub readings. The settlement hubs should be installed after fill placement and the elevations at the hubs be measured by a licensed surveyor in the State of North Carolina at the time of installation and two times a week thereafter. The date of measurement and elevation at each hub shall be provided by the surveyor to the geotechnical engineer after each measurement. Monitoring should not end until less than 0.10 inch of settlement is measured over a period of four weeks. Settlement hubs should be considered at the following locations, and should be in accordance with NCDOT Standard Drawing 235.01 and Section 235-3 of the Standard Specifications:

Alignment	Stations (±)	Offset
-L-	44+00	20' LT
-L-	44+50	20' LT
-L-	45+00	20' LT
-L-	45+50	20' LT
-L-	46+00	20' LT
-L-	46+50	CL
-L-	47+00	CL
-L-	47+50	CL

In this station range, our analysis (Figures B and C in the Appendix) indicates that up to a 5-month waiting period (beyond an assumed 3-month construction time) will be required for settlement to occur such that less than 1 inch of total settlement remains. We note that due to varying cross slopes and existing fill materials, this



settlement may not be uniform across the embankments. This waiting period should be anticipated after embankment construction is complete for settlement of the embankment fill and underlying foundation soils to occur prior to final roadway construction. This waiting time may be reduced provided the settlement monitoring criteria is satisfied.

**Undercut for Embankment Stability:** Based on our analysis, undercutting for embankment stability is recommended to a depth of 5 feet at the toe of the left slope at the following station range. A quantity of 1,500 cubic yards is recommended.

Alignment	Station Range	Offset
-L-	31+00 to 35+00	90' LT to 70' LT

In addition, we recommend that a quantity of 200 cubic yards of undercut for embankment stability should be included in the project contract as a contingency item to be used at the discretion of the Engineer.

**Geotextile for Soil Stabilization:** A quantity of 4,900 square yards of geotextile for soil stabilization should be included in the project contract due to the presence of variable fill soils in areas where only about 20 feet of embankment fill is planned, prior to placing additional embankment fill soils. The geotextile is to be used in the following areas:

Alignment	Station Range	Offset
-L-	31+00 to 35+00	90' LT to 70' LT
-L-	30+00 to 36+00	30' LT to 30' RT

#### 4.1.2 *Subgrade Stability*

**Grade Point Undercut:** Where natural ground and proposed grade line cross, grade point undercut should be performed. A contingency quantity of 50 cubic yards of grade point undercut should be planned.

**Undercut for Subgrade Stability:** A quantity of 200 cubic yards of subgrade undercut should be included in the project contract as a contingency item for areas of unsuitable subgrade soil to be used at the discretion of the Engineer.

**Geotextile for Soil Stabilization:** A quantity of 200 square yards of geotextile for soil stabilization should be included in the project contract as a contingency to be used at the discretion of the Engineer. The geotextile is to be used in areas requiring undercut for subgrade stability.

#### 4.1.3 *Borrow Specifications*

**Borrow Criteria:** Common borrow for embankment construction to subgrade shall meet Statewide Criteria specifications outlined in the Standard Specifications, Article 1018-2(A).

**Shrinkage Factor:** A shrinkage factor of 15% is recommended in the calculation of all earthwork quantities. This is to compensate for loss of soils due to erosion, clearing and grubbing of fill areas, and an increase in embankment quantities required due to consolidation of underlying soils and other factors.

**Select Material:** We recommend a quantity of 1,500 cubic yards of Select Granular Material be included in the contract, associated with the undercutting for embankment stability. In addition, we recommend that a quantity of 200 cubic yards of Select Granular Material should be included in the contract as a contingency item to be used at the discretion of the Engineer, for use with embankment stability and subgrade stability. Select Granular Material shall meet the criteria outlined in Standard Specifications, Article 1016-3 Class II through VI.

#### *4.1.4 Miscellaneous*

**Springs:** No springs were identified during the field reconnaissance.

**Wells:** No wells were encountered during the field reconnaissance. Wells encountered on site should be closed in accordance with NCDOT Standard Specifications.

## **4.2 Pavement Recommendations**

### *4.2.1 Airport Overlook Drive (-L-)*

Considering the NCDOT Pavement Design Procedure (2017), a required total number of 18-kip single axle load applications (ESALs) of **213,067** have been determined for the Airport Overlook Drive (-L-) considering a 20-year design life.

An additional 262,958 ESALs over a 2-to-3-year (assumed) construction period is anticipated due to construction truck traffic. As this loading will not be applied over the 20-year life, a staged analysis was performed to consider the effects of this early loading, the likelihood of some deterioration, and the resulting need for repair such that the pavements perform over a 20-year life once construction traffic is complete. We anticipate this repair may consist of milling and replacement of the surface layer after construction hauling.

Based on the results of the testing program, pavement designs have considered a soaked laboratory CBR value of 4.0 along the subject -L- alignment. Also, the pavement design is based on a reliability of 90%, a standard deviation of 0.45, and a final terminal serviceability (Pt) of 2.5. The asphalt design procedures are based on the NCDOT Pavement Design Procedure (2017) and the 1993 AASHTO Guide for Design of Pavement Structures.

Based on the traffic loading information and the information provided to us, we are presenting pavement thicknesses for traditional pavements and for sections with curb & gutter. These are shown in the following tables, which present thicknesses without and with the anticipated additional construction hauling traffic.

**Table 4-1: Airport Overlook Drive (-L-)**  
**No Construction Traffic Pavement Thickness Recommendations**

Material	Thickness (inches)	Alternative for Curb & Gutter Section - Design Thickness (inches)
Asphalt Surface Course (S 9.5B)	1.5	3
Asphalt Intermediate Course (I 19.0C)	3	4
ABC Stone	8	6*

\*Optional

**Table 4-2: Airport Overlook Drive (-L-)**  
**With Construction Traffic Pavement Thickness Recommendations**

Material	Thickness (inches)	Alternative for Curb & Gutter Section - Design Thickness (inches)
Asphalt Surface Course (S 9.5B)	2	3
Asphalt Intermediate Course (I 19.0C)	4	4
ABC Stone	8	6

Once the construction traffic is completed, we recommend that the surface be evaluated for deterioration due the construction traffic. We anticipate that a 2-inch mill and replacement of the Surface Course material will be required; however, this will depend on the actual conditions at the evaluation time.

#### *4.2.2 Airport Overlook Site Pavements*

Although daily traffic loading information was not provided, an estimated 20,000 ESALs for light-duty pavements and 150,000 ESALs for heavy-duty pavement areas over a 20-year design life was used in the design. If actual pavement loading conditions become available, we request the opportunity to evaluate our pavement thickness recommendations. Flexible pavement design is based on initial serviceability of 4.2 and a terminal serviceability of 2.5. A base modulus of subgrade reaction of 100 pci was used for rigid pavement design.

Recommended pavement sections based on the anticipated traffic and subgrade conditions are presented in Table 4-3.

**Table 4-3: Recommended Overlook Site Pavement Sections**

Pavement Type	Material	Thickness (inches)	
		Light Duty	Heavy Duty
Rigid	Concrete (4,000 psi)	4	5
	Aggregate Base Course (ABC)	6	6
Flexible	Asphalt Surface Course (S 9.5B)	2.5	1.5
	Asphalt Intermediate Course (I 19.0C)	-	2.5
	Aggregate Base Course (ABC)	8	8

Light-duty pavements should be designated for car parking areas/stalls and lightly traveled service roads (including -DR1- and -DR2-). Heavy-duty pavements should be designated for entrances and exits, access roads (including -DR3-), driveways, truck lanes, and areas in front of dumpsters.

#### 4.2.3 Gravel Drives

We understand that the -DR1- and -DR2- roadways are likely to be gravel-only drives. An 8-inch-thick ABC section is sufficient for these driveways.

Periodic maintenance of the gravel driveways will be necessary to ensure satisfactory performance. Routine maintenance includes reshaping and regrading with a motor grader (plus compaction of the loosened surface), filling low areas and otherwise reconditioning the gravel areas by placing additional ABC stone over the access drive to maintain the established elevations. Improper maintenance can lead to deterioration of the gravel surface, especially in wet weather.

Prevention of infiltration of water into the subgrade is essential for the successful performance of the gravel surface. The gravel surface and shoulders should be sloped to promote surface drainage away from the pavement structure. The gravel surface will be susceptible to deterioration (e.g. raveling and rutting) due to exposure to weather and traffic.

#### 4.2.4 General

The early placement of the graded aggregate base course will minimize the deterioration of the prepared soil subgrades. However, some loss of graded aggregate due to rutting and surface contamination may occur prior to final asphalt paving. Some infilling and re-grading of the graded aggregate in conjunction with sweeping with a wire broom may be required.

We recommend that special care be given to providing adequate drainage away from pavement areas to reduce infiltration of surface water to the base course and subgrade materials in these areas. If the subgrade soils are allowed to become saturated during the life of the pavement section, there may be a strength reduction of the materials that could result in a reduced life of the pavement section. All water should be routed away from the pavements via ditches to maintain drainage. Pavement areas should be proofrolled prior to placing structural fill and/or base course. Proofrolling procedures are outlined in previous sections of this report.

### **4.3 Overlook Structure**

As previously noted, the overlook will contain a small restroom building measuring about 25 feet by 30 feet, bearing around elevation 777 feet. This structure is planned to bear on about 10 feet of newly-placed structural fill. We anticipate maximum column loads of 50 kips and maximum wall loads of up to 4 kips/linear foot.

#### *4.3.1 Foundation Support*

Provided the fill placement recommendations provided in this report (Section 4.3.4) are implemented, the proposed structure can be adequately supported by a shallow foundation system. An allowable bearing pressure of up to 2,000 pounds per square foot (psf) can be used for design of the foundations bearing on the newly placed structural fill. Shallow foundations should be designed to bear at least 12 inches below finished grades for frost protection and protective embedment. Column footings should be at least 24 inches square and wall footings should be at least 18 inches wide to prevent a punching shear failure of the foundation bearing soils.

Based on our experience with similar projects and the anticipated magnitude of the structural loads, the total and differential settlement potentials for the structures should be less than approximately 1 inch and ½ inch, respectively, providing that our recommendations are followed. These conclusions are contingent upon compliance with the site preparation and fill placement recommendations outlined in this report.

All footing excavations should be observed by the geotechnical engineer's representative to confirm that suitable soils are present at/below the proposed bearing elevation. Plastic soils, if encountered at foundation bearing elevation, should be undercut per the direction of the geotechnical engineer. If evaluation with DCP testing encounters soft or other unsuitable materials in the footing excavations, undercutting may be required. Soft soils should be undercut until suitable soils are encountered. Undercut foundations should be backfilled with compacted structural fill, washed stone wrapped in a non-woven geotextile, or lean concrete.

Prepared bearing surfaces for foundations should not be disturbed or left exposed during inclement weather. Saturation of the footing subgrade can cause a loss of strength and increased compressibility. If foundation excavations must remain open overnight or if rainfall becomes imminent while the bearing soils are exposed, we recommend that a 2 to 4-inch thick "mud-mat" of lean (2000 psi) concrete be placed on the bearing soils before placement of reinforcing steel to help protect the bearing soils from further disturbance. Also, concrete should not be placed on frozen subgrades.

#### *4.3.2 Floor Slabs*

Traditional ground/soil supported slabs may be supported on low-plasticity residual soils or properly compacted structural fill, provided the earthwork procedures outlined in this report are implemented. A minimum 4-inch-thick layer of stone (NCDOT No. 57 or No. 67) or minimum 6-inch thick layer of compacted graded stone (NCDOT ABC), as well as a plastic moisture vapor barrier, should be provided beneath all building floor slabs to provide a capillary break in areas where floor coverings/spaces prohibit a damp slab condition.

The slabs should be designed to resist the anticipated dead and live loads. We recommend that the slabs be designed using a Standard Modulus of Subgrade Reaction (k) of 100 pounds per cubic inch. The Standard Modulus of Subgrade Reaction represents the value correlated for a 30-inch diameter Plate Bearing Test.

Immediately prior to constructing the floor slabs, we recommend that the areas be evaluated to detect any softened, loosened or disturbed areas that may have been exposed to wet weather or construction traffic. Areas that are found to be disturbed or unsuitable should be undercut and replaced with adequately compacted structural fill. This evaluation should be performed by a staff professional or a senior soil technician under his/her direction.

#### *4.3.3 Seismic Design*

The proposed structure should be designed to resist the possible earthquake effects as determined in accordance with Section 1613 of the North Carolina Building Code (NCBC) 2018 Edition (2015 International Building Code with North Carolina Amendments) which references ASCE 7-10. Based on our experience with local subsurface conditions, we recommend a **Seismic Site Class D** can be used for design.

#### *4.3.4 Fill Material and Placement*

All fill used for site grading operations in the Overlook structure area should consist of a clean (free of organics and debris), low plasticity soil (Liquid Limit less than 50, Plasticity Index less than 25). The proposed fill should have a maximum dry density of at least 90 pounds per cubic foot as determined by a standard Proctor compaction test, ASTM D698. Structural fill soils should generally classify as CL, ML, SC, SM, SW, or GW in accordance with the USCS. Additionally, the maximum grain size should not exceed 3 inches.

All fill should be placed in loose lifts not exceeding 8 inches in thickness and at moisture contents within 3 percent of the optimum moisture content of the material as determined by ASTM D698 (standard Proctor). Each lift of fill should be uniformly compacted to a dry density of at least 95 percent of the maximum dry density of the material determined according to ASTM D698 (standard Proctor), and the upper 18 inches of fill should be compacted to at least 98 percent. The geotechnical engineer's representative should perform in-place field density tests to evaluate the compaction of the structural fill and backfill placed at the site. We recommend that at least one density test be performed per lift per lift in the structure areas and one test per lift per 100 linear feet in utility trenches.

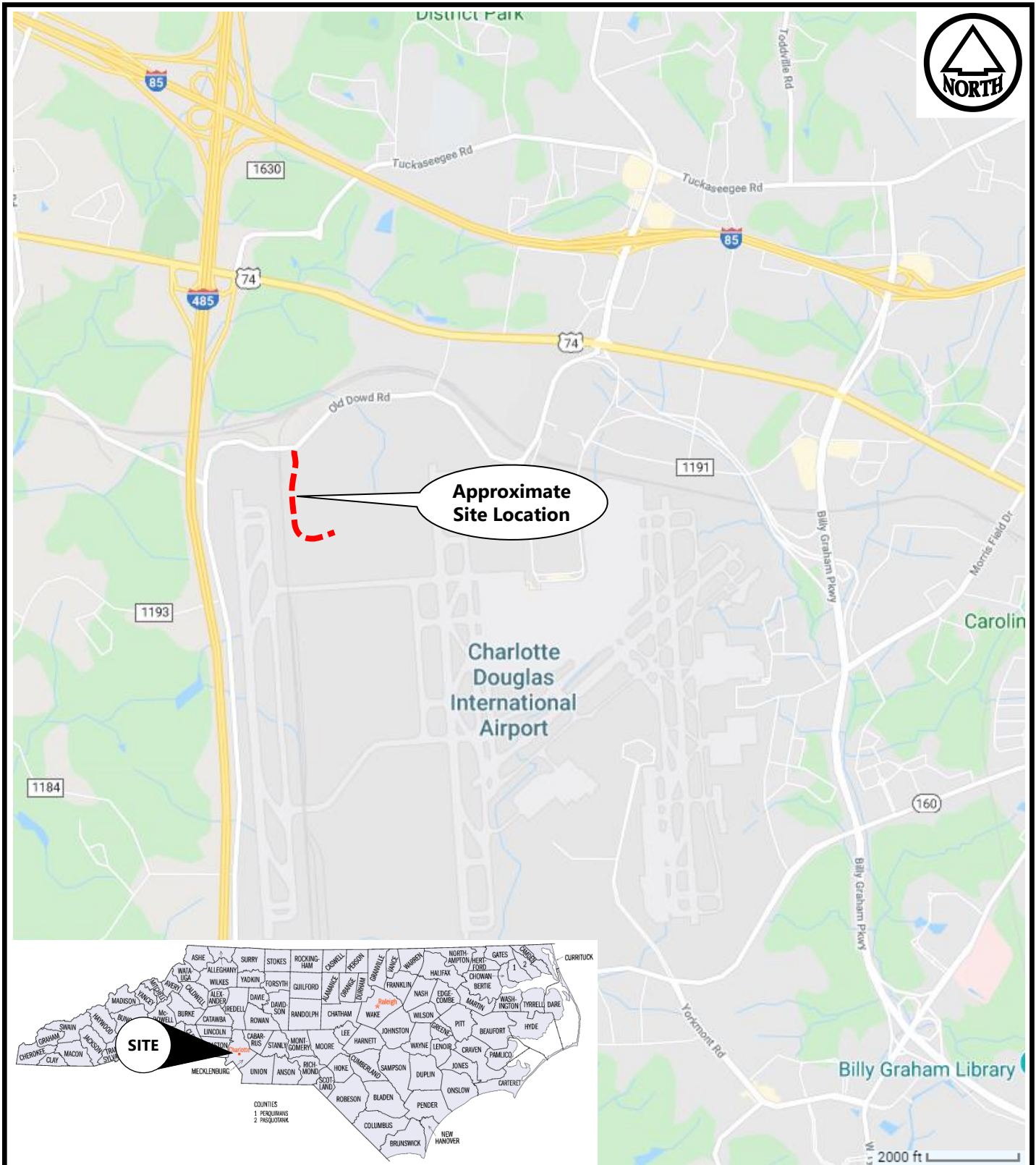
## **5.0 Qualifications of Report**

This report has been prepared in accordance with generally accepted geotechnical engineering practice for specific application to this project. The conclusions contained in this report were based on the applicable standards of our profession at the time this report was prepared. No other warranty, expressed or implied, is made.

The conclusions submitted in this report are based, in part, upon the data obtained from the subsurface exploration. The nature and extent of subsurface variations between the borings may not become evident until construction. If variations appear evident, then the conclusions contained in this report may need to be re-evaluated. In the event that any changes in the nature, design, or location of the structure are planned, the conclusions contained in this report will not be considered valid unless the changes are reviewed by S&ME, and the conclusions of the report are modified or verified in writing.

## Appendix





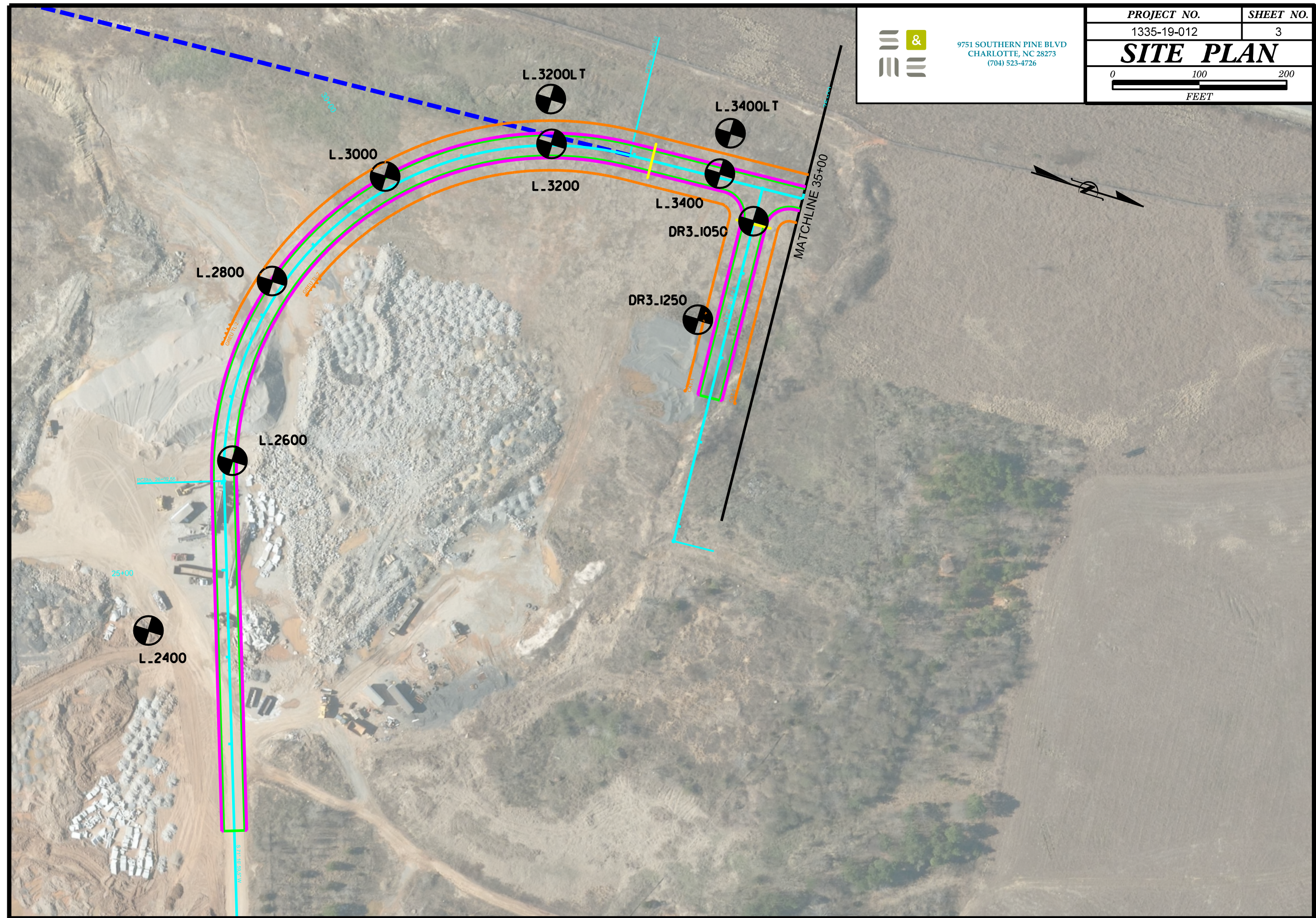
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		DRAWN BY:	LAC	
		CHECKED BY:	KHH	
	PROJECT NO.:	1335-19-012	DATE:	




## SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

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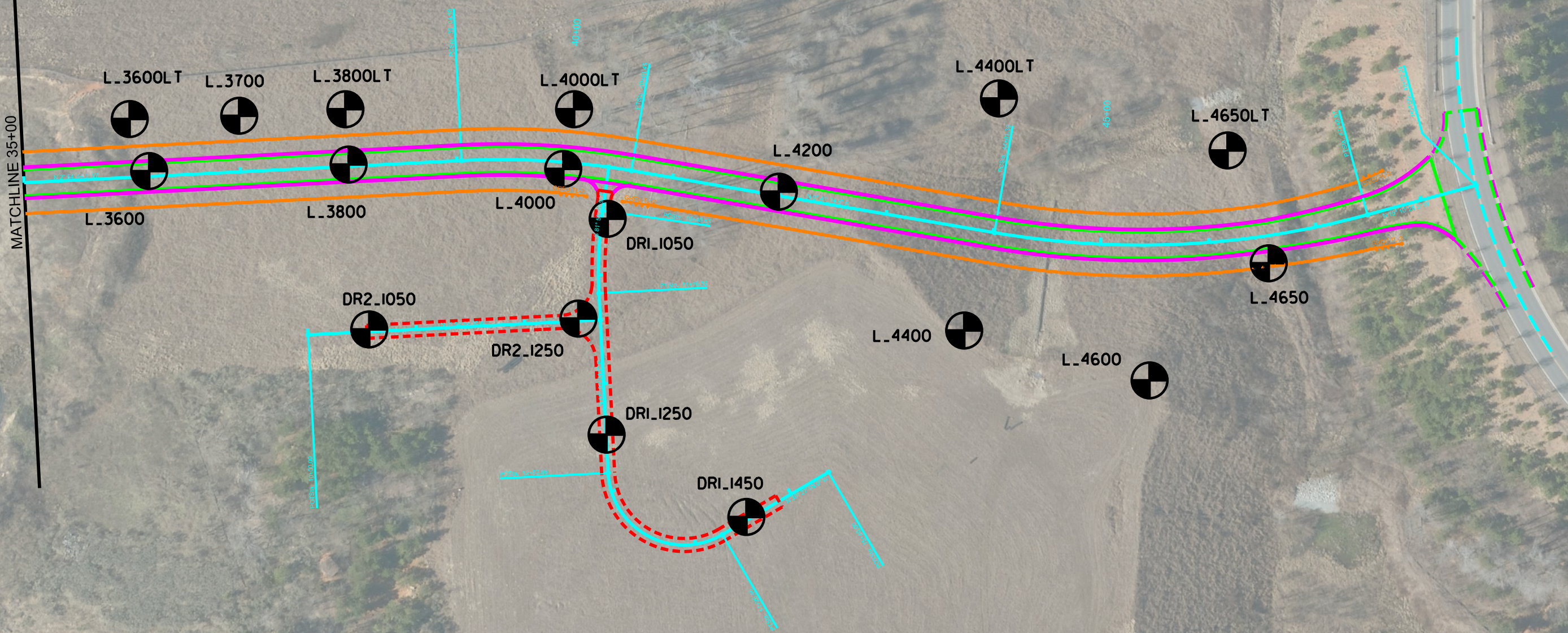




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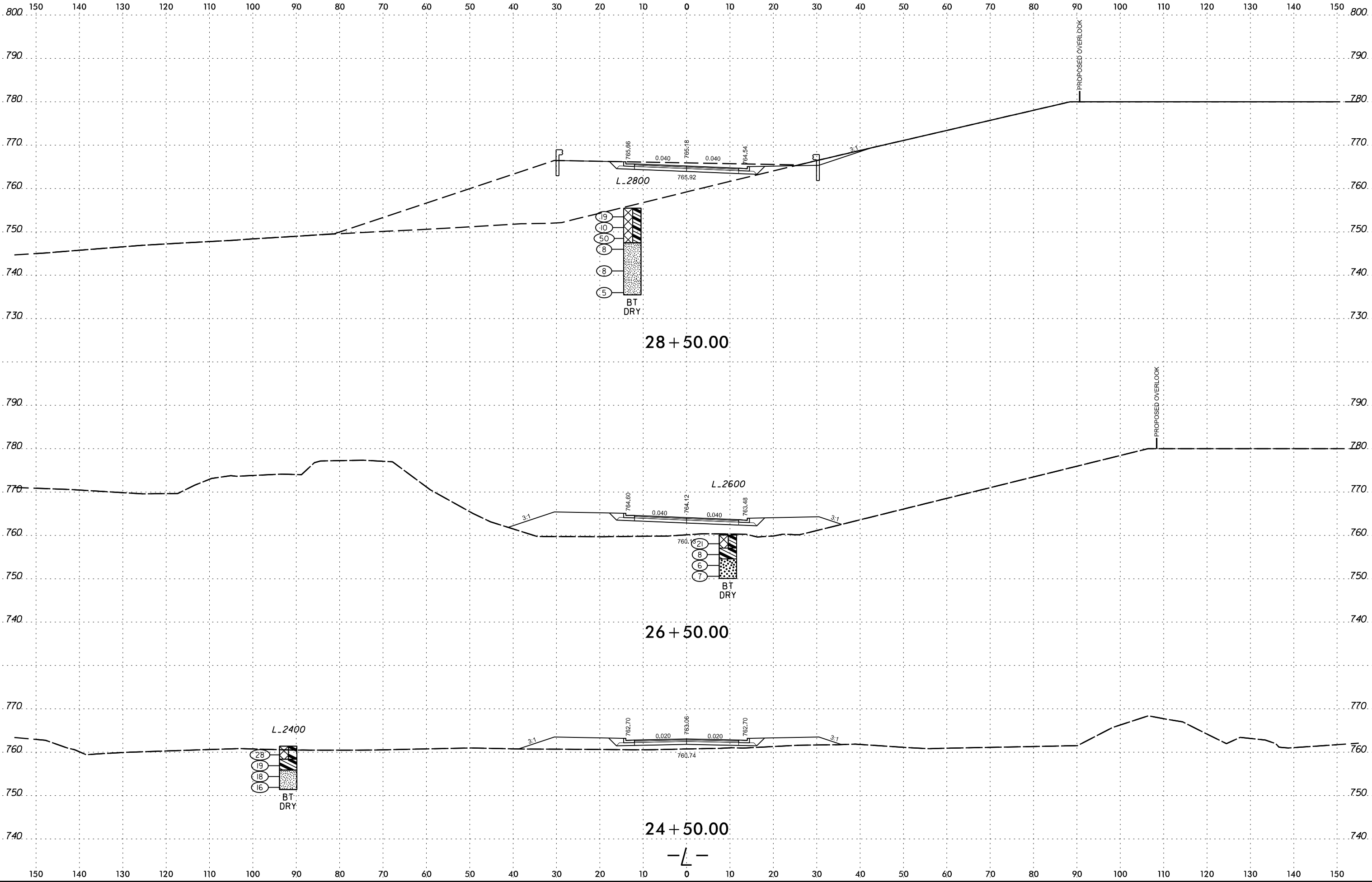


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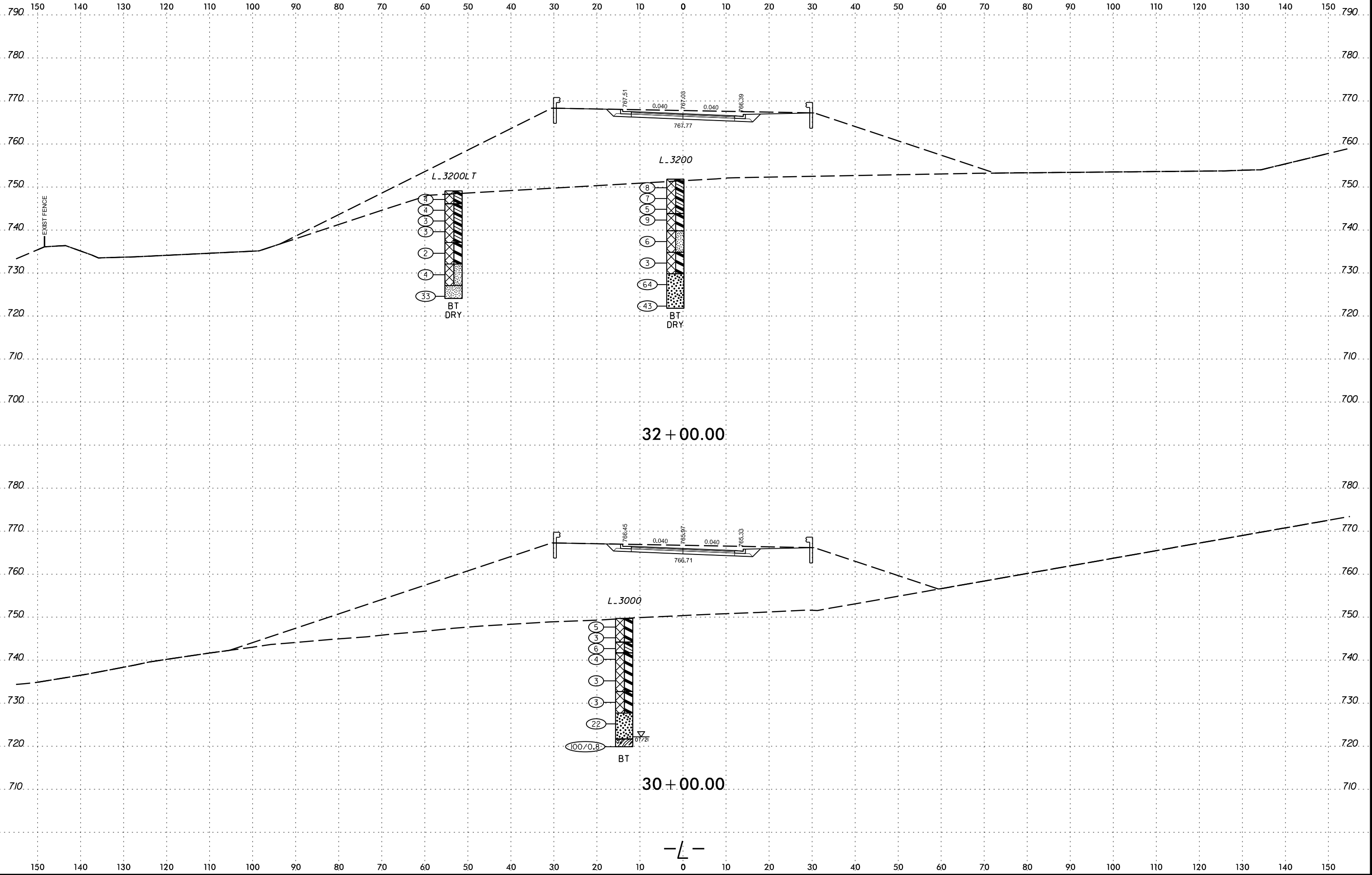


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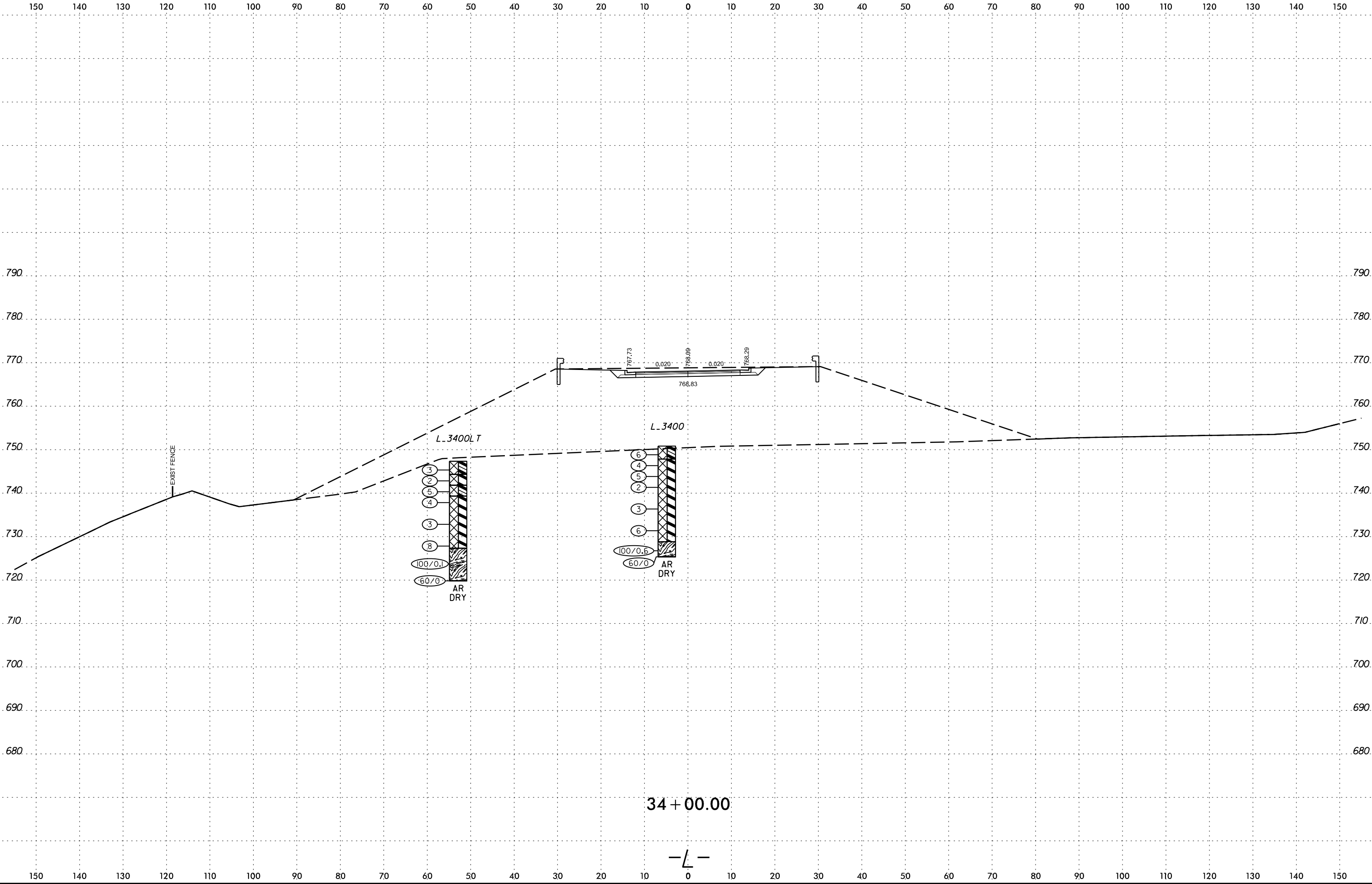


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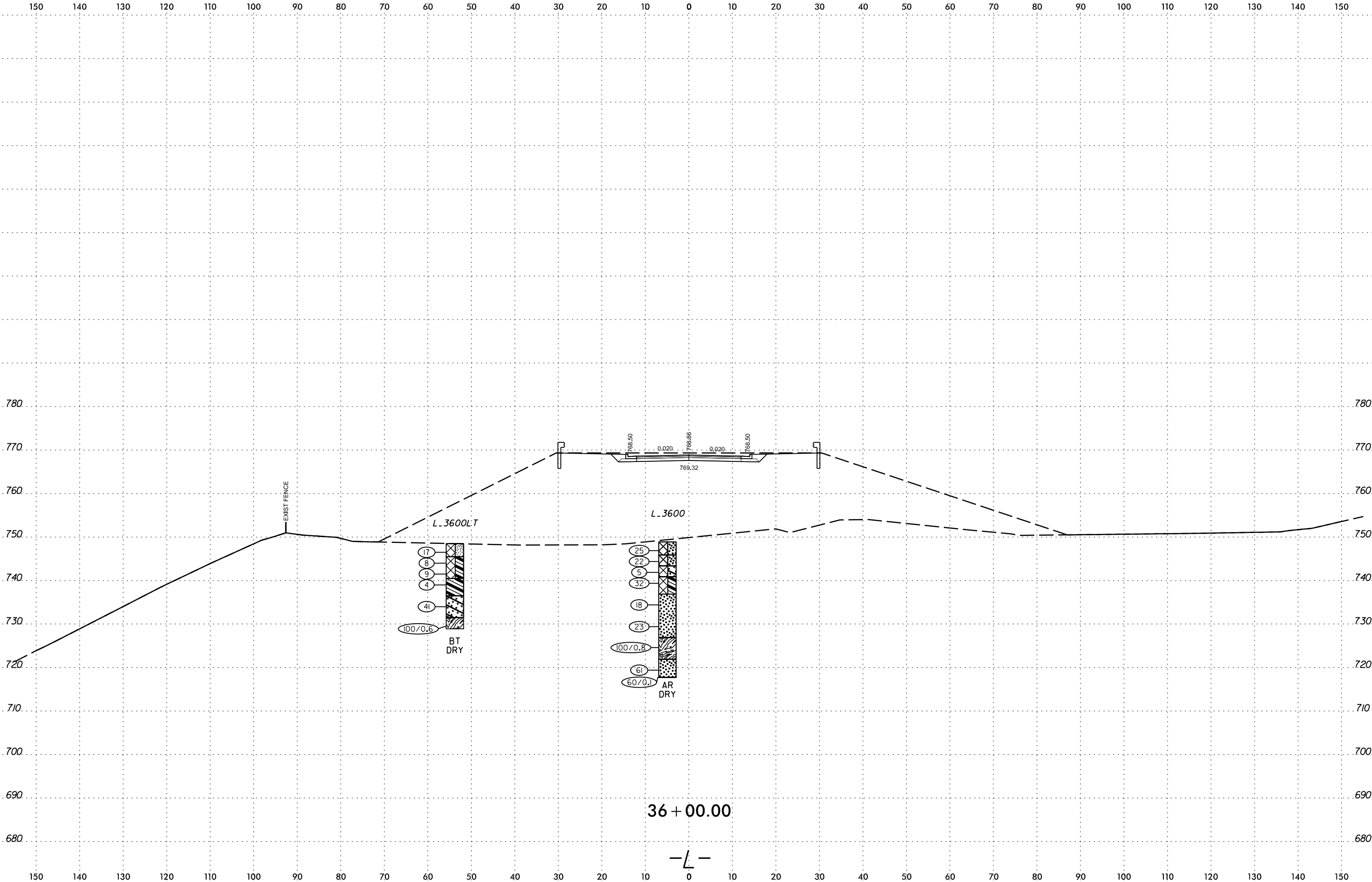


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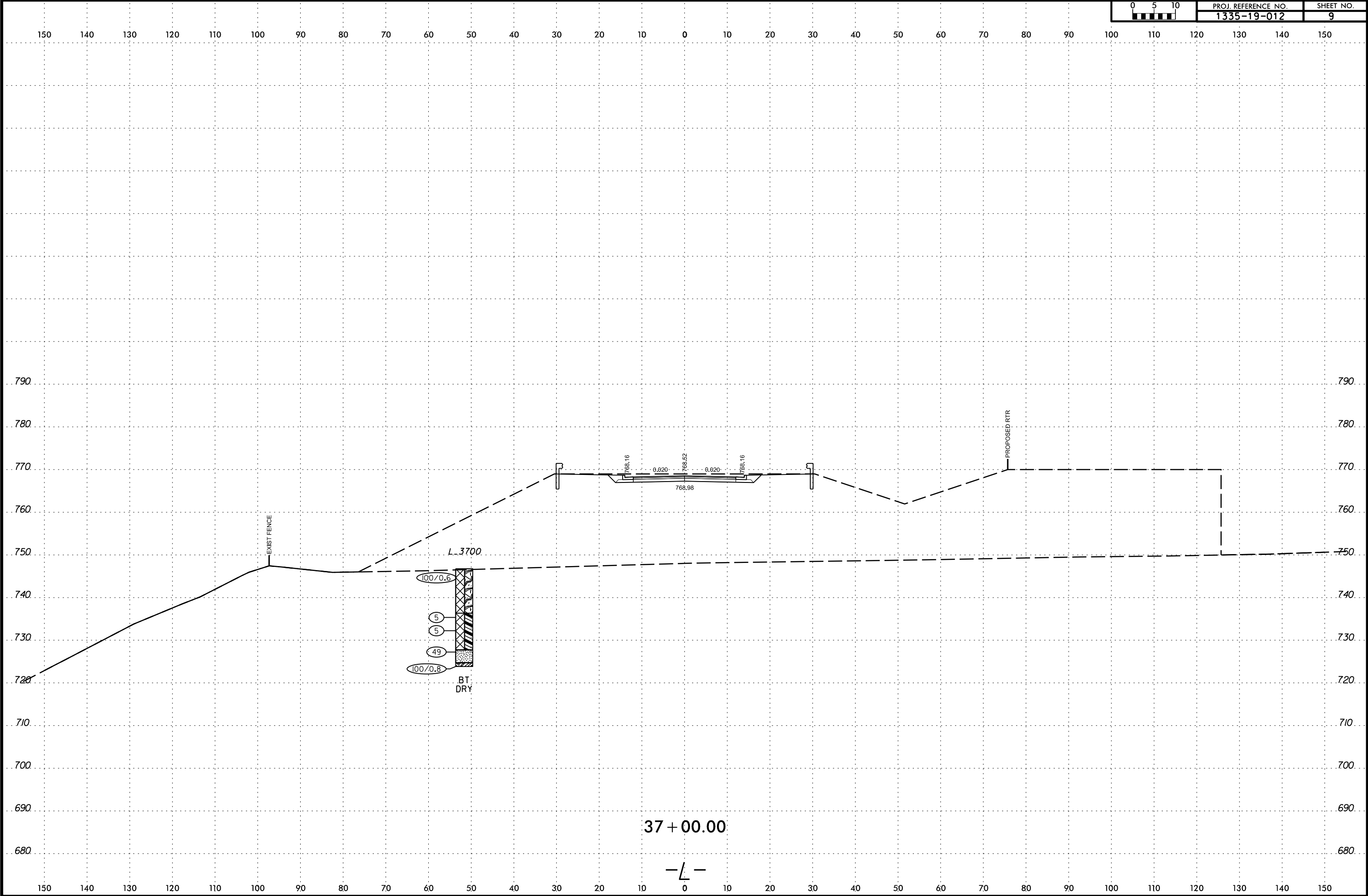


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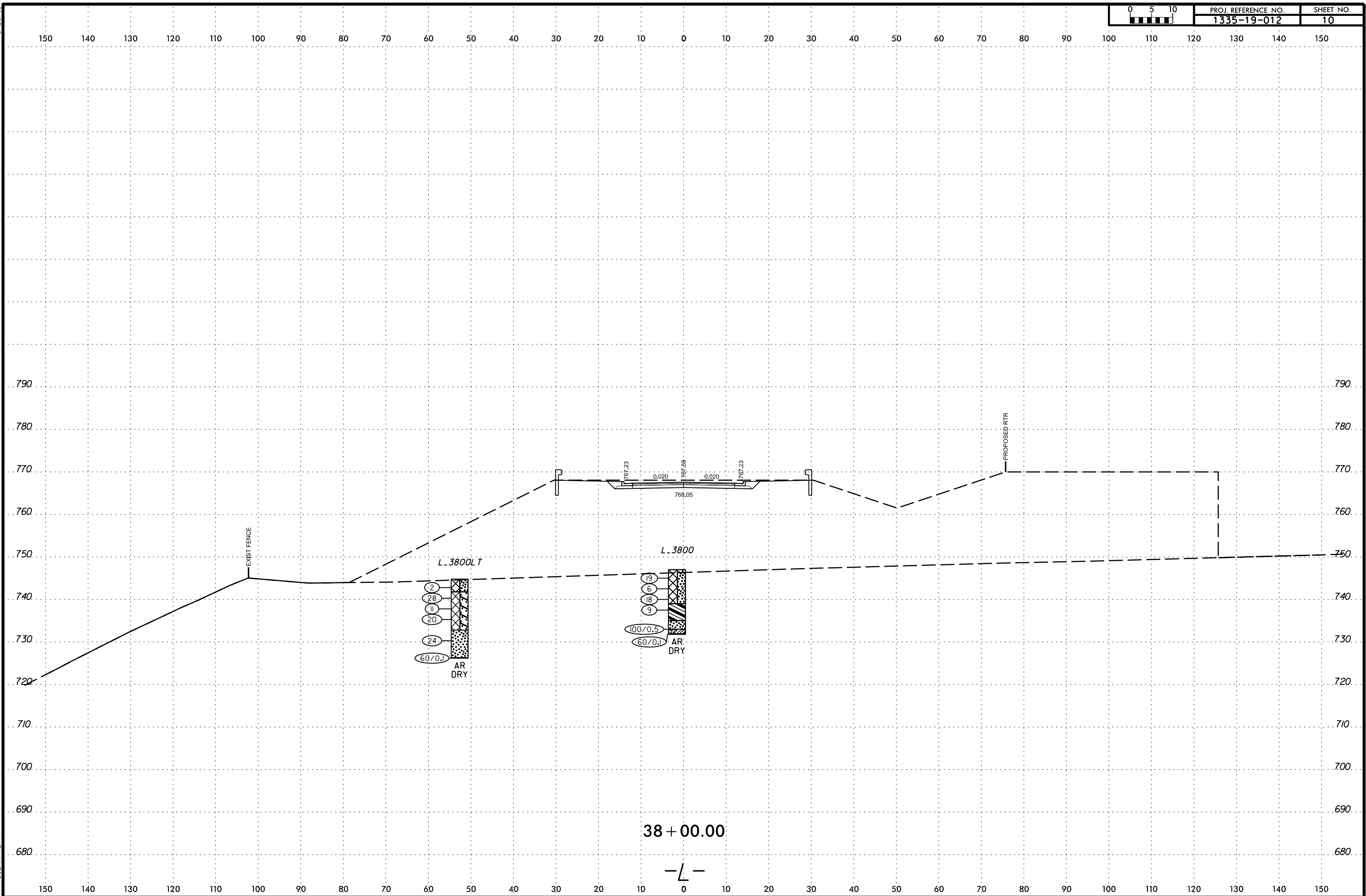


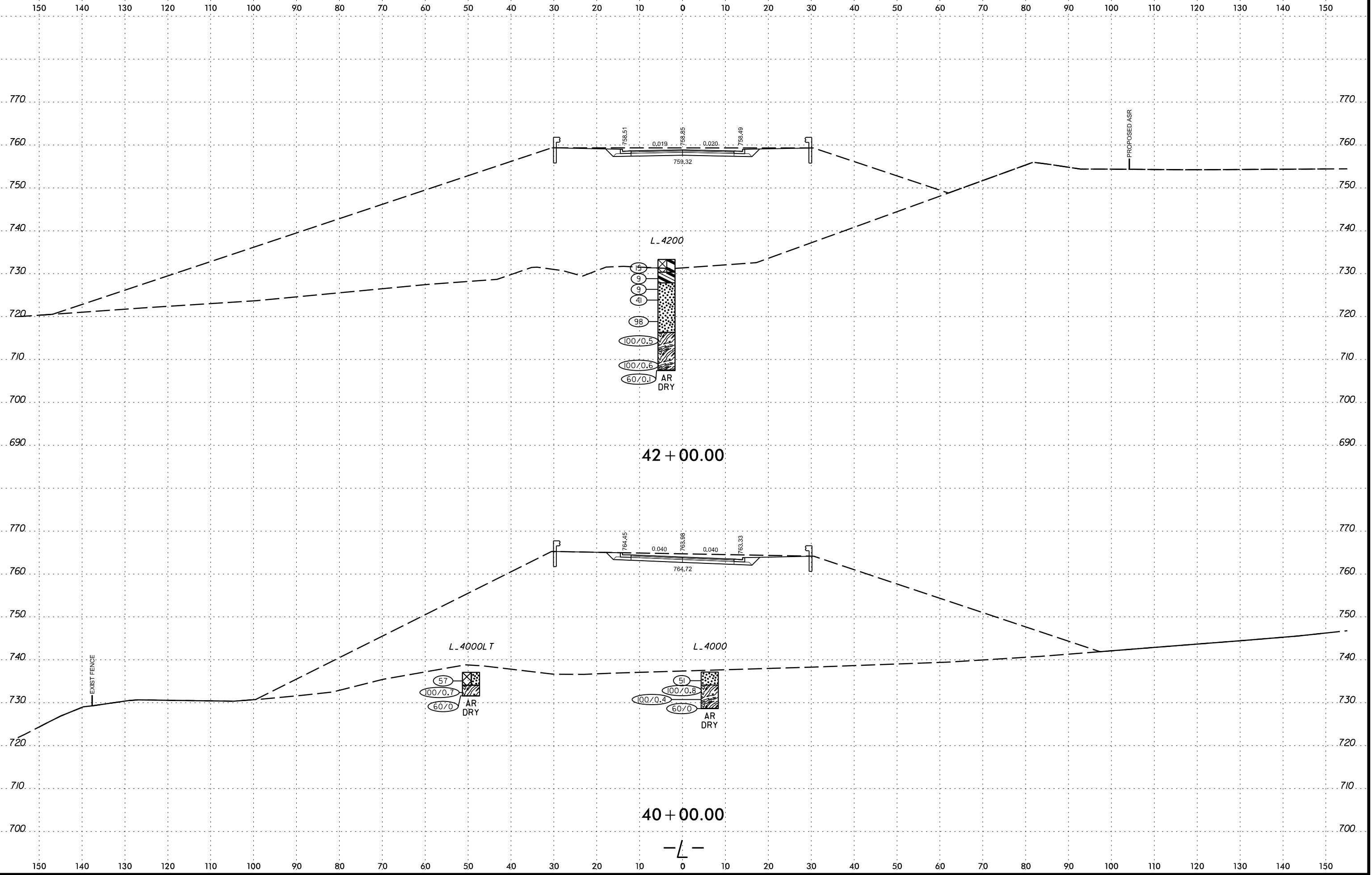
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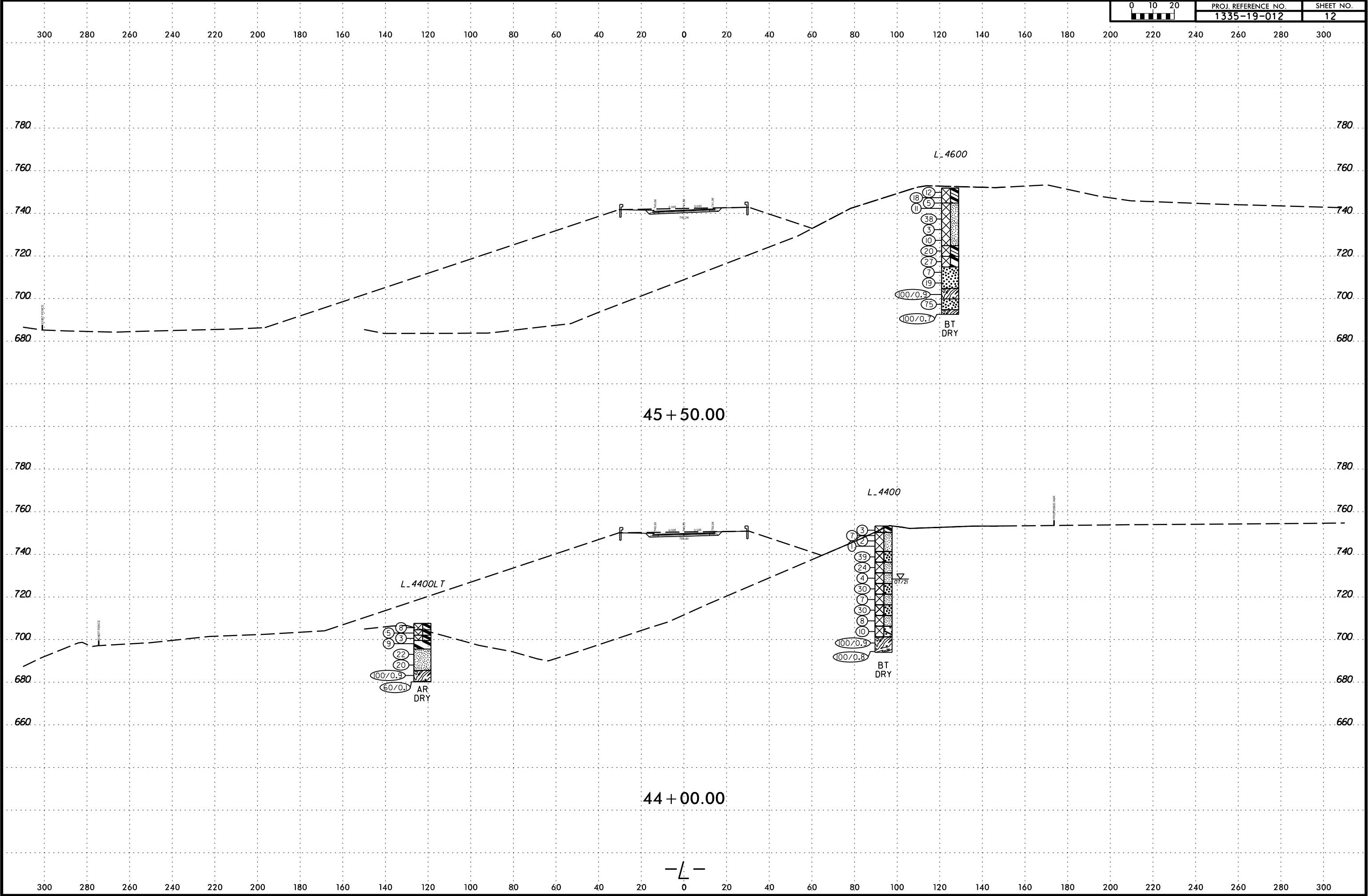


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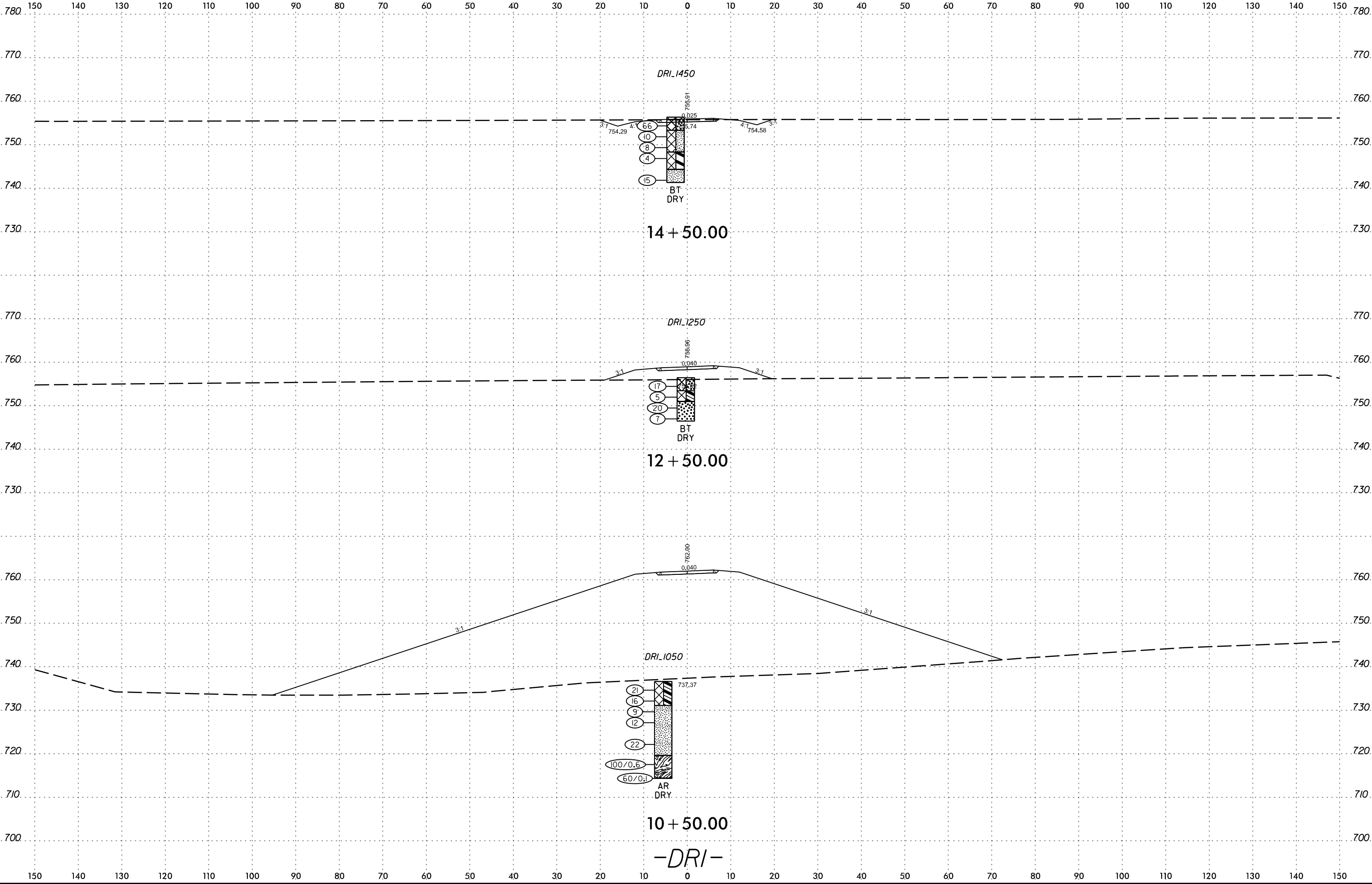


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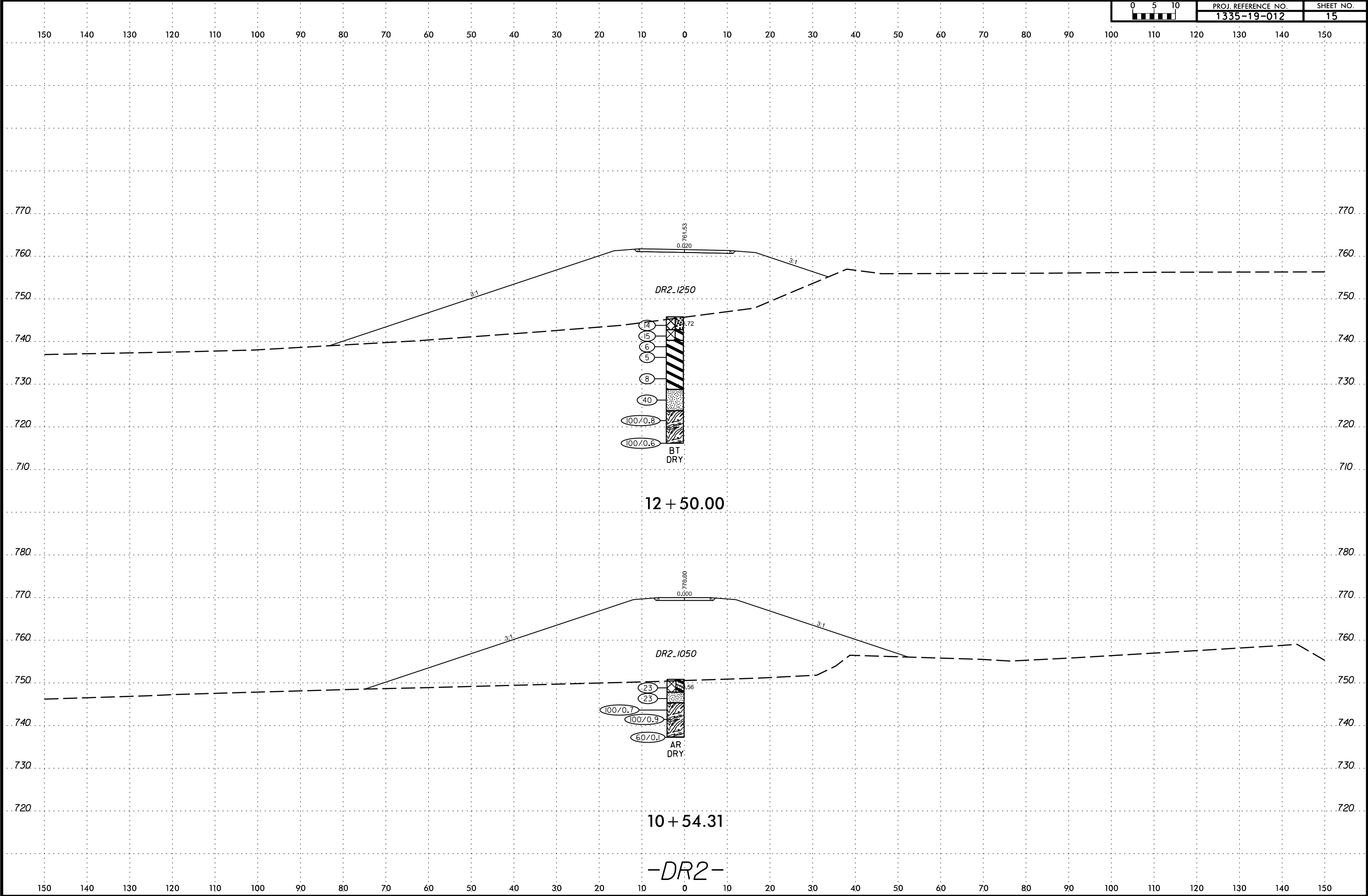
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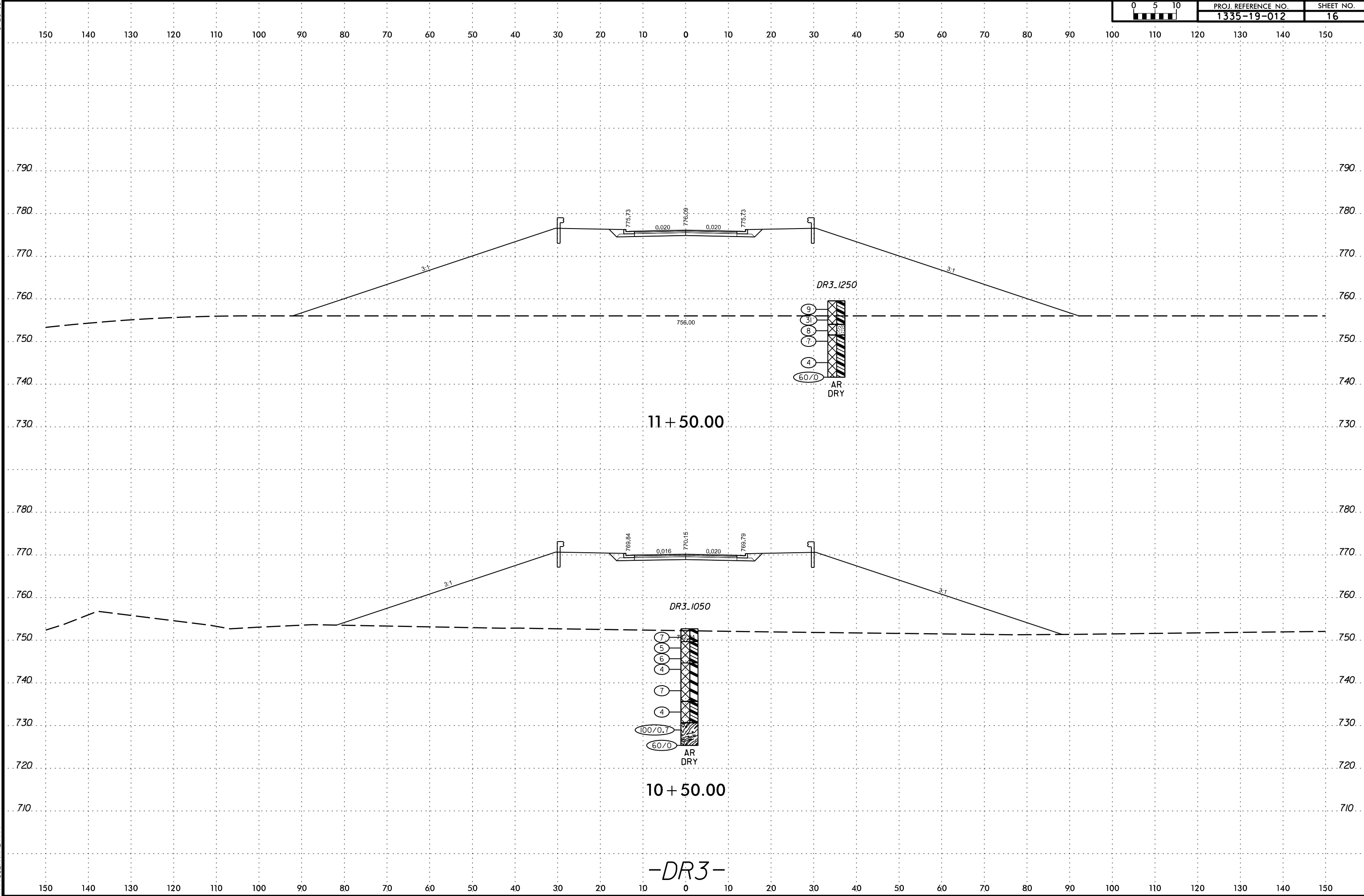


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NC DOT BORE DOUBLE CHARLOTTE NEAT PHASE 01 OVERLOOK RDY.GPJ NC DOT.GDT 3/9/23

WBS			-			TIP			-			COUNTY			MECKLENBURG			GEOLOGIST			Rodriguez, A.																							
SITE DESCRIPTION															Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)										GROUND WTR (ft)																			
BORING NO.					L_2600					STATION					26+26					OFFSET					10 ft RT					ALIGNMENT					-L-					0 HR.		Dry		
COLLAR ELEV.					760.1 ft					TOTAL DEPTH					10.0 ft					NORTHING					542,141					EASTING					1,414,206					24 HR.		N/A		
DRILL RIG/HAMMER EFF./DATE															SME6573 CME-550X 84% 10/01/2020										DRILL METHOD					H.S. Augers					HAMMER TYPE					Automatic				
DRILLER					S. Gowan					START DATE					07/20/21					COMP. DATE					07/20/21					SURFACE WATER DEPTH										N/A				
ELEV	DRIVE	DEPTH	BLOW COUNT			BLOWS PER FOOT					SAMP.	NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION																													
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75	100																																		
765																																												
760																																												
	759.1	1.0		11	13	8																																						
	756.6	3.5		2	4	4																																						
755	754.1	6.0		3	3	3																																						
	751.6	8.5		2	3	4																																						
							</																																					



NCDOT BORE DOUBLE CHARLOTTE NEAT PHASE 01 OVERLOOK RDY.GPJ NC DOT.GDT 3/9/23

WBS		-		TIP		-		COUNTY		MECKLENBURG		GEOLOGIST		Rodriguez, A.																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
SITE DESCRIPTION												Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)												GROUND WTR (ft)																																																																																																																																																																																																																																																																																																																																																																																																																																																												
BORING NO.				L_3000				STATION				30+11				OFFSET				14 ft LT				ALIGNMENT				-L-				0 HR.		27.5																																																																																																																																																																																																																																																																																																																																																																																																																																																		
COLLAR ELEV.				749.7 ft				TOTAL DEPTH				29.8 ft				NORTHING				542,213				EASTING				1,413,842				24 HR.		N/A																																																																																																																																																																																																																																																																																																																																																																																																																																																		
DRILL RIG/HAMMER EFF./DATE										SME6573 CME-550X 84% 10/01/2020										DRILL METHOD						H.S. Augers						HAMMER TYPE				Automatic																																																																																																																																																																																																																																																																																																																																																																																																																																																
DRILLER						S. Gowan						START DATE						07/20/21						COMP. DATE						07/20/21						SURFACE WATER DEPTH										N/A																																																																																																																																																																																																																																																																																																																																																																																																																																						
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT										SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
750																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	748.7	1.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

GEOTECHNICAL BORING REPORT  
BORE LOG

WBS		-		TIP		-		COUNTY		MECKLENBURG		GEOLOGIST		Rodriguez, A.																																													
SITE DESCRIPTION												Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)				GROUND WTR (ft)																																											
BORING NO.				L_3200LT				STATION				32+03				OFFSET				53 ft LT				ALIGNMENT				-L-				0 HR.		Dry																									
COLLAR ELEV.				748.6 ft				TOTAL DEPTH				25.0 ft				NORTHING				542,369				EASTING				1,413,701				24 HR.		N/A																									
DRILL RIG/HAMMER EFF./DATE										SME6573 CME-550X 84% 10/01/2020										DRILL METHOD										H.S. Augers										HAMMER TYPE										Automatic									
DRILLER						J. Marlowe						START DATE						07/20/21						COMP. DATE						07/20/21						SURFACE WATER DEPTH												N/A											
ELEV (ft)		DRIVE ELEV (ft)		DEPTH (ft)		BLOW COUNT			BLOWS PER FOOT										SAMP. NO.		MOI		LOG		SOIL AND ROCK DESCRIPTION																																		
						0.5ft 0.5ft 0.5ft			0 25 50 75 100																ELEV. (ft) DEPTH (ft)																																		
750																																																											
		747.6		1.0		2 2 2			<div><div></div><div></div><div></div></div>												M		<div><div></div><div></div><div></div></div>		748.6 GROUND SURFACE 0.0																																		
745		745.1		3.5		2 2 2			<div><div></div><div></div><div></div></div>												M		<div><div></div><div></div><div></div></div>		745.6 ARTIFICIAL FILL 3.0																																		
		742.6		6.0		2 1 2			<div><div></div><div></div><div></div></div>												M		<div><div></div><div></div><div></div></div>		BLACK SOFT SANDY CLAY (A-6), LITTLE ORGANICS (WOOD PIECES)																																		
740		740.1		8.5		WOH WOH 3			<div><div></div><div></div><div></div></div>										SS-3		22%		<div><div></div><div></div><div></div></div>		736.6 BLACK SOFT SILTY CLAY (A-7-6) 12.0																																		
735		735.1		13.5		2 1 1			<div><div></div><div></div><div></div></div>												W		<div><div></div><div></div><div></div></div>		731.6 GRAY BROWN SOFT SANDY SILT (A-4) 17.0																																		
730		730.1		18.5		2 1 3			<div><div></div><div></div><div></div></div>												M		<div><div></div><div></div><div></div></div>		726.6 RESIDUAL 22.0																																		
725		725.1		23.5		8 11 22			<div><div></div><div></div><div></div></div>												M		<div><div></div><div></div><div></div></div>		723.6 GRAY BROWN HARD SANDY SILT (A-4), TRACE MICA 25.0																																		
									<div><div></div><div></div><div></div></div>																Boring Terminated at Elevation 723.6 ft In Sandy Silt																																		

WBS -			TIP -			COUNTY MECKLENBURG			GEOLOGIST Rodriguez, A.					
SITE DESCRIPTION Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)									GROUND WTR (ft)					
BORING NO. L_3200			STATION 32+04			OFFSET 2 ft LT			ALIGNMENT -L-			0 HR. Dry		
COLLAR ELEV. 751.4 ft			TOTAL DEPTH 30.0 ft			NORTHING 542,385			EASTING 1,413,750			24 HR. N/A		
DRILL RIG/HAMMER EFF./DATE SME6573 CME-550X 84% 10/01/2020						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic					
DRILLER S. Gowan			START DATE 07/20/21			COMP. DATE 07/20/21			SURFACE WATER DEPTH N/A					
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
755														
750	750.4	1.0												751.4 GROUND SURFACE 0.0
745	747.9	3.5	2	3	5							M		ARTIFICIAL FILL
	745.4	6.0	2	3	4							M		BLACK MEDIUM STIFF SANDY CLAY (A-6), LITTLE ORGANICS (WOOD PIECES)
740	742.9	8.5	2	2	3							M		
			16	4	5							M		743.4 BROWN ORANGE STIFF CLAYEY SILT (A-7-5) 8.0
735	737.9	13.5	2	2	4							M		739.4 GRAY MEDIUM STIFF SANDY SILT (A-4) 12.0
	732.9	18.5										M		734.4 GRAY SOFT CLAYEY SILT (A-7-5) 17.0
730			1	2	1						SS-16	30%		729.4 22.0
	727.9	23.5	14	24	40							M		RESIDUAL
725	722.9	28.5	7	16	27							M		TAN BROWN VERY DENSE TO DENSE SILTY FINE TO COARSE SAND (A-2-4)
														721.4 Boring Terminated at Elevation 721.4 ft In Silty Sand 30.0

NCDOT BORE DOUBLE CHARLOTTE NEAT PHASE 01 OVERLOOK RDY.GPJ NC\_DOT.GDT 3/9/23

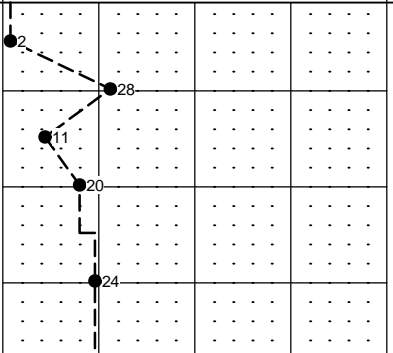
NCDOT BORE DOUBLE CHARLOTTE NEAT PHASE 01 OVERLOOK RDY.GPJ NC DOT.GDT 3/9/23

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NCDOT BORE DOUBLE CHARLOTTE NEAT PHASE 01 OVERLOOK RDY.GPJ NC DOT.GDT 3/9/23

[illegible]

NCDOT BORE DOUBLE CHARLOTTE NEAT PHASE 01 OVERLOOK RDY.GPJ NC DOT.GDT 3/9/23

WBS				-				TIP				-				COUNTY				MECKLENBURG				GEOLOGIST				Rodriguez, A.																																											
SITE DESCRIPTION																				Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)												GROUND WTR (ft)																																							
BORING NO.						L_3800LT						STATION						38+00						OFFSET						53 ft LT						ALIGNMENT						-L-						0 HR.		Dry																					
COLLAR ELEV.						744.6 ft						TOTAL DEPTH						18.6 ft						NORTHING						542,976						EASTING						1,413,658						24 HR.		N/A																					
DRILL RIG/HAMMER EFF./DATE												SME6573 CME-550X 84% 10/01/2020												DRILL METHOD								H.S. Augers								HAMMER TYPE								Automatic																							
DRILLER								J. Marlowe								START DATE								07/16/21								COMP. DATE								07/16/21								SURFACE WATER DEPTH																N/A							
ELEV (ft)		DRIVE ELEV (ft)		DEPTH (ft)		BLOW COUNT			BLOWS PER FOOT										SAMP. NO.		MOI		LOG		SOIL AND ROCK DESCRIPTION																																														
						0.5ft 0.5ft 0.5ft			0 25 50 75 100																																																														
745																									744.6 GROUND SURFACE 0.0																																														
		743.6		1.0		1 1 1																			ARTIFICIAL FILL																																														
		741.1		3.5		8 14 14																			BROWN VERY LOOSE SILTY FINE TO COARSE SAND (A-2-4)																																														
		738.6		6.0		7 6 5																			GRAY MEDIUM DENSE CLAYEY FINE TO COARSE SAND (A-2-6), SOME COBBLE/BOULDER FILL																																														
		736.1		8.5		6 11 9																																																																	
735																																																																							
		731.1		13.5		13 11 13																			732.6 RESIDUAL 12.0																																														
		726.1		18.5		60/0.1																			ORANGE BROWN MEDIUM DENSE SILTY FINE TO COARSE SAND (A-2-4)																																														
																									726.1 18.5																																														
																									726.0 18.6																																														
																									CRYSTALLINE ROCK																																														
																									METAMORPHOSED QUARTZ DIORITE																																														
																									Boring Terminated by Auger Refusal at Elevation 726.0 ft In Crystalline Rock																																														

GEOTECHNICAL BORING REPORT  
BORE LOG

WBS		-		TIP		-		COUNTY		MECKLENBURG		GEOLOGIST		Rodriguez, A.																																													
SITE DESCRIPTION												Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)				GROUND WTR (ft)																																											
BORING NO.				L_3800				STATION				38+00				OFFSET				2 ft LT				ALIGNMENT				-L-				0 HR.		Dry																									
COLLAR ELEV.				746.3 ft				TOTAL DEPTH				15.2 ft				NORTHING				542,979				EASTING				1,413,709				24 HR.		N/A																									
DRILL RIG/HAMMER EFF./DATE										SME6573 CME-550X 84% 10/01/2020										DRILL METHOD										H.S. Augers										HAMMER TYPE										Automatic									
DRILLER						J. Marlowe						START DATE						07/16/21						COMP. DATE						07/16/21						SURFACE WATER DEPTH												N/A											
ELEV (ft)		DRIVE ELEV (ft)		DEPTH (ft)		BLOW COUNT			BLOWS PER FOOT					SAMP. NO.		MOI		LOG		SOIL AND ROCK DESCRIPTION												DEPTH (ft)																											
						0.5ft 0.5ft 0.5ft			0 25 50 75 100																																																		
750																																																											
745		745.3		1.0		6 10 9														746.3 GROUND SURFACE 0.0																																							
		742.8		3.5		2 2 4														ARTIFICIAL FILL BROWN TAN MEDIUM DENSE TO LOOSE SILTY FINE TO COARSE SAND (A-2-4)																																							
740		740.3		6.0		8 11 7														738.3 8.0																																							
		737.8		8.5		5 4 5														RESIDUAL BROWN ORANGE STIFF SANDY CLAY (A-6)																																							
735		732.8		13.5		100/0.5														734.3 12.0																																							
		731.2		15.1		60/0.1														732.3 14.0 731.2 15.1 731.1 15.2																																							
																				WEATHERED ROCK METAMORPHOSED QUARTZ DIORITE																																							
																				CRYSTALLINE ROCK METAMORPHOSED QUARTZ DIORITE																																							
																				Boring Terminated by Auger Refusal at Elevation 731.1 ft In Crystalline Rock																																							

WBS			TIP			COUNTY			MECKLENBURG			GEOLOGIST			Rodriguez, A.																										
SITE DESCRIPTION												Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)						GROUND WTR (ft)																							
BORING NO.			L_4000LT			STATION			40+04			OFFSET			49 ft LT			ALIGNMENT			-L-			0 HR.		Dry															
COLLAR ELEV.			738.2 ft			TOTAL DEPTH			5.5 ft			NORTHING			543,187			EASTING			1,413,658			24 HR.		N/A															
DRILL RIG/HAMMER EFF./DATE									SME6573 CME-550X 84% 10/01/2020									DRILL METHOD				Wash Boring				HAMMER TYPE				Automatic											
DRILLER					J. Marlowe					START DATE					07/15/21					COMP. DATE					07/15/21					SURFACE WATER DEPTH										N/A	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION																											
			0.5ft	0.5ft	0.5ft	0	25	50	75	100																															
740																																									
735	737.2	1.0		20	39	18																																			
	734.7	3.5		9	57	43/0.2																																			
	732.7	5.5		60/0																																					
													</																												

NCDOT BORE DOUBLE CHARLOTTE NEAT PHASE 01 OVERLOOK RDY.GPJ NC DOT.GDT 3/9/23

WBS -			TIP -			COUNTY MECKLENBURG			GEOLOGIST Rodriguez, A.					
SITE DESCRIPTION Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)										GROUND WTR (ft)				
BORING NO. L_4200			STATION 41+99			OFFSET 4 ft LT			ALIGNMENT -L-			0 HR. Dry		
COLLAR ELEV. 731.3 ft			TOTAL DEPTH 25.9 ft			NORTHING 543,376			EASTING 1,413,734			24 HR. N/A		
DRILL RIG/HAMMER EFF./DATE SME6573 CME-550X 84% 10/01/2020						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic					
DRILLER J. Marlowe			START DATE 07/12/21			COMP. DATE 07/12/21			SURFACE WATER DEPTH N/A					
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
735														
730	730.3	1.0												731.3 GROUND SURFACE 0.0
														ARTIFICIAL FILL
	727.8	3.5	2	6	9						SS-8	14%		728.3 BROWN BLACK STIFF SILTY CLAY (A-7-6), LITTLE ORGANICS (WOOD DEBRIS) 3.0
														RESIDUAL
725	725.3	6.0	2	4	5							M		725.8 RED BROWN STIFF SANDY CLAY (A-6) 5.5
												M		ORANGE TAN LOOSE TO VERY DENSE SILTY FINE TO COARSE SAND (A-2-4)
	722.8	8.5	3	4	5							M		
720			6	20	21							M		
	717.8	13.5										M		
715			6	30	68									714.3 17.0
														WEATHERED ROCK
	712.8	18.5												METAMORPHOSED QUARTZ DIORITE
			100/0.5											
710														
	707.8	23.5												
			15	63	37/0.2									
	705.5	25.8												705.5 25.8
			60/0.1											705.4 25.9
														CRYSTALLINE ROCK
														METAMORPHOSED QUARTZ DIORITE
														Boring Terminated by Auger Refusal at Elevation 705.4 ft In Crystalline Rock

GEOTECHNICAL BORING REPORT  
BORE LOG

WBS -			TIP -			COUNTY MECKLENBURG			GEOLOGIST Rodriguez, A.							
SITE DESCRIPTION Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)									GROUND WTR (ft)							
BORING NO. L_4400LT			STATION 43+85			OFFSET 123 ft LT			ALIGNMENT -L-			0 HR. Dry				
COLLAR ELEV. 707.6 ft			TOTAL DEPTH 27.4 ft			NORTHING 543,579			EASTING 1,413,648			24 HR. N/A				
DRILL RIG/HAMMER EFF./DATE SME6573 CME-550X 84% 10/01/2020						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic							
DRILLER J. Marlowe			START DATE 07/14/21			COMP. DATE 07/14/21			SURFACE WATER DEPTH N/A							
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION		DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
710																
705	706.6	1.0	5	4	4									707.6	GROUND SURFACE	0.0
	704.1	3.5	10	3	2									704.6	ARTIFICIAL FILL	3.0
700	701.6	6.0	1	1	2									702.1	BROWN ORANGE MEDIUM STIFF SANDY CLAY (A-6)	5.5
	699.1	8.5	2	3	6									699.6	GRAY BLACK MEDIUM STIFF SILTY CLAY (A-7-6), LITTLE ORGANICS (WOOD PIECES)	8.0
695															GRAY ORANGE SOFT CLAYEY SILT (A-7-5)	
	694.1	13.5	4	10	12									695.6	RESIDUAL	12.0
690															BROWN GRAY STIFF CLAYEY SILT (A-7-5)	
	689.1	18.5	6	7	13										BROWN TAN VERY STIFF SANDY SILT (A-4)	
685																
	684.1	23.5	2	30	70/0.4									685.6	WEATHERED ROCK	22.0
	680.3	27.3													METAMORPHOSED QUARTZ DIORITE	
														680.3		27.3
														680.2	CRYSTALLINE ROCK	27.4
															METAMORPHOSED QUARTZ DIORITE	
															Boring Terminated by Auger Refusal at Elevation 680.2 ft In Crystalline Rock	

WBS -			TIP -			COUNTY MECKLENBURG			GEOLOGIST Rodriguez, A.				
SITE DESCRIPTION Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)									GROUND WTR (ft)				
BORING NO. L_4400			STATION 43+89			OFFSET 94 ft RT			ALIGNMENT -L-			0 HR. 24.9	
COLLAR ELEV. 753.3 ft			TOTAL DEPTH 59.3 ft			NORTHING 543,547			EASTING 1,413,862			24 HR. N/A	
DRILL RIG/HAMMER EFF./DATE SME6573 CME-550X 84% 10/01/2020						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic				
DRILLER J. Marlowe			START DATE 07/20/21			COMP. DATE 07/20/21			SURFACE WATER DEPTH N/A				
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION
			0.5ft	0.5ft	0.5ft	0	25	50	75	100		MOI	
755													
	752.3	1.0	2	2	1								753.3 GROUND SURFACE 0.0
750	749.8	3.5	2	3	4							M	750.3 ARTIFICIAL FILL BROWN SOFT SANDY CLAY (A-6) 3.0
	747.3	6.0	WOH	1	1							M	GRAY BROWN MEDIUM STIFF TO VERY SOFT SANDY SILT (A-4)
745	744.8	8.5	WOH	WOH	1							M	
740	739.8	13.5	7	19	20							M	741.3 GRAY DENSE SILTY FINE TO COARSE SAND (A-2-4), SOME COBBLE/BOULDER FILL 12.0
735	734.8	18.5	11	12	12							M	736.3 BROWN VERY STIFF SANDY SILT (A-4), SOME COBBLE/BOULDER FILL 17.0
730	729.8	23.5	2	2	2							M	731.3 BROWN SOFT SANDY SILT (A-4) 22.0
725	724.8	28.5	3	3	27							M	726.3 GRAY BROWN MEDIUM DENSE SILTY FINE TO COARSE SAND (A-2-4) 27.0
720	719.8	33.5	2	3	4							W	721.3 GRAY BROWN MEDIUM STIFF SANDY SILT (A-4) 32.0
715	714.8	38.5	10	13	17							W	716.3 ORANGE BROWN MEDIUM DENSE SILTY FINE TO COARSE SAND (A-2-4) 37.0
710	709.8	43.5	2	3	5							M	711.3 BROWN MEDIUM STIFF SANDY SILT (A-4) 42.0
705	704.8	48.5	2	3	7							M	706.3 GRAY LOOSE CLAYEY FINE TO COARSE SAND (A-2-6), ORGANIC SMELL 47.0
700	699.8	53.5	15	29	71/0.4							W	701.3 WEATHERED ROCK METAMORPHOSED QUARTZ DIORITE 52.0
695	694.8	58.5	50	50/0.3									694.0 Boring Terminated at Elevation 694.0 ft In Weathered Rock 59.3



NCDOT BORE DOUBLE CHARLOTTE NEAT PHASE 01 OVERLOOK RDY.GPJ NC DOT.GDT 3/9/23

WBS			-			TIP			-			COUNTY			MECKLENBURG			GEOLOGIST			Rodriguez, A.																																						
SITE DESCRIPTION																		Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)																		GROUND WTR (ft)																							
BORING NO.						L_4650LT						STATION						46+27						OFFSET						83 ft LT						ALIGNMENT						-L-						0 HR.				Dry							
COLLAR ELEV.						689.9 ft						TOTAL DEPTH						46.1 ft						NORTHING						543,790						EASTING						1,413,696						24 HR.				N/A							
DRILL RIG/HAMMER EFF./DATE														SME6573 CME-550X 84% 10/01/2020														DRILL METHOD								Wash Boring								HAMMER TYPE								Automatic							
DRILLER						J. Marlowe						START DATE						07/15/21						COMP. DATE						07/15/21						SURFACE WATER DEPTH																		N/A					
ELEV (ft)		DRIVE ELEV (ft)		DEPTH (ft)		BLOW COUNT			BLOWS PER FOOT										SAMP. NO.		MOI		LOG		SOIL AND ROCK DESCRIPTION																																		
						0.5ft 0.5ft 0.5ft			0 25 50 75 100																																																		
690																									689.9 GROUND SURFACE 0.0																																		
		688.9		1.0		1 2 3			5														D		ARTIFICIAL FILL																																		
		686.4		3.5		4 7 11			1														M		686.9 ORANGE BROWN MEDIUM STIFF SANDY SILT (A-4) 3.0																																		
685		683.9		6.0		2 2 5			7														M		RESIDUAL																																		
		681.4		8.5		2 3 2			5														M		ORANGE BROWN BLACK MEDIUM STIFF CLAYEY SILT (A-7-5)																																		
680																							W																																				
		676.4		13.5		1 2 3			5										SS-18		44%				672.9																																		
675		671.4		18.5		9 9 12			21														W		ORANGE MEDIUM STIFF TO HARD SANDY SILT (A-4) 17.0																																		
		666.4		23.5		8 12 13			25														M																																				
665		661.4		28.5		8 10 13			23														M																																				
		656.4		33.5		20 32 35			67														M																																				
655		651.4		38.5		17 17 24			41														M																																				
		646.4		43.5		22 29 20			49														M																																				
645		643.9		46.0		60/0.1			60/0.1																643.9 46.0																																		
																									643.8 46.1																																		
																									CRYSTALLINE ROCK																																		
																									METAMORPHOSED QUARTZ DIORITE																																		
																									Boring Terminated by Auger Refusal at Elevation 643.8 ft In Crystalline Rock																																		

NCDOT BORE DOUBLE CHARLOTTE NEAT PHASE 01 OVERLOOK RDY.GPJ NC DOT.GDT 3/9/23

WBS		-		TIP		-		COUNTY		MECKLENBURG		GEOLOGIST		Rodriguez, A.																									
SITE DESCRIPTION												Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)												GROUND WTR (ft)															
BORING NO.				DR1_1050				STATION				10+47				OFFSET				6 ft LT				ALIGNMENT				-DR1-				0 HR.		Dry					
COLLAR ELEV.				736.9 ft				TOTAL DEPTH				22.3 ft				NORTHING				543,218				EASTING				1,413,759				24 HR.		N/A					
DRILL RIG/HAMMER EFF./DATE												SME6573 CME-550X 84% 10/01/2020												DRILL METHOD				Wash Boring				HAMMER TYPE				Automatic			
DRILLER				J. Marlowe				START DATE				07/15/21				COMP. DATE				07/15/21				SURFACE WATER DEPTH								N/A							
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION																									
			0.5ft	0.5ft	0.5ft	0	25	50	75	100																													
740																																							
735	735.9	1.0		9	13	8																																	
	733.4	3.5		11	7	9																																	
730	730.9	6.0		4	4	5																																	
	728.4	8.5		3	5	7																																	
725																																							
	723.4	13.5		5	8	14																																	
720																																							
	718.4	18.5		66	34/0.1																																		
715	714.7	22.2																																					
			60/0.1																																				

GEOTECHNICAL BORING REPORT  
BORE LOG

WBS -			TIP -			COUNTY MECKLENBURG			GEOLOGIST Rodriguez, A.					
SITE DESCRIPTION Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)									GROUND WTR (ft)					
BORING NO. DR1_1250			STATION 12+47			OFFSET 1 ft LT			ALIGNMENT -DR1-			0 HR. Dry		
COLLAR ELEV. 756.0 ft			TOTAL DEPTH 10.0 ft			NORTHING 543,217			EASTING 1,413,958			24 HR. N/A		
DRILL RIG/HAMMER EFF./DATE SME6573 CME-550X 84% 10/01/2020						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic					
DRILLER J. Marlowe			START DATE 07/20/21			COMP. DATE 07/20/21			SURFACE WATER DEPTH N/A					
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)
760														
755	755.0	1.0											756.0	GROUND SURFACE 0.0
750	752.5	3.5	9	8	9						M		753.0	ARTIFICIAL FILL 3.0
	750.0	6.0	2	2	3						M		750.5	ORANGE BROWN MEDIUM STIFF SANDY CLAY (A-6) 5.5
	747.5	8.5	11	9	11						M			RESIDUAL
			3	4	3						M		746.0	GRAY BROWN MEDIUM DENSE TO LOOSE SILTY FINE TO COARSE SAND (A-2-4) 10.0
													Boring Terminated at Elevation 746.0 ft In Silty Sand	

WBS -			TIP -			COUNTY MECKLENBURG			GEOLOGIST Rodriguez, A.				
SITE DESCRIPTION Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)									GROUND WTR (ft)				
BORING NO. DR1_1450			STATION 14+53			OFFSET 3 ft LT			ALIGNMENT -DR1-			0 HR. Dry	
COLLAR ELEV. 755.7 ft			TOTAL DEPTH 15.0 ft			NORTHING 543,346			EASTING 1,414,034			24 HR. N/A	
DRILL RIG/HAMMER EFF./DATE SME6573 CME-550X 84% 10/01/2020						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic				
DRILLER J. Marlowe			START DATE 07/20/21			COMP. DATE 07/20/21			SURFACE WATER DEPTH N/A				
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION
			0.5ft	0.5ft	0.5ft	0	25	50	75	100		MOI	
760													
755													
750	754.7	1.0	5	16	50								755.7 GROUND SURFACE 0.0
	752.2	3.5	8	6	4								752.7 ARTIFICIAL FILL 3.0
	749.7	6.0	4	3	5								GRAY VERY DENSE SILTY FINE TO COARSE SAND (A-2-4), SOME COBBLE/BOULDER FILL
745	747.2	8.5	1	2	2								747.7 BROWN GRAY STIFF TO MEDIUM STIFF SANDY SILT (A-4) 8.0
	742.2	13.5	15	7	8								743.7 BROWN SOFT SILTY CLAY (A-7-6) 12.0
													740.7 RESIDUAL 15.0
													ORANGE BROWN STIFF SANDY SILT (A-4)
													Boring Terminated at Elevation 740.7 ft In Sandy Silt

GEOTECHNICAL BORING REPORT  
BORE LOG

WBS -				TIP -				COUNTY MECKLENBURG				GEOLOGIST Rodriguez, A.					
SITE DESCRIPTION Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)												GROUND WTR (ft)					
BORING NO. DR2_1050				STATION 10+57				OFFSET 2 ft LT				ALIGNMENT -DR2-				0 HR. Dry	
COLLAR ELEV. 750.5 ft				TOTAL DEPTH 13.6 ft				NORTHING 542,998				EASTING 1,413,861				24 HR. N/A	
DRILL RIG/HAMMER EFF./DATE SME6573 CME-550X 84% 10/01/2020								DRILL METHOD Wash Boring				HAMMER TYPE Automatic					
DRILLER J. Marlowe				START DATE 07/16/21				COMP. DATE 07/16/21				SURFACE WATER DEPTH N/A					
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION				
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					ELEV. (ft)	DEPTH (ft)	
755																	
750																	
745	749.5	1.0	11	14	9								750.5 GROUND SURFACE 0.0				
	747.0	3.5	7	8	15								747.5 ARTIFICIAL FILL 3.0				
	744.5	6.0	26	61	39/0.2								745.0 RESIDUAL 5.5				
	742.0	8.5	57	43/0.4								745.0 ORANGE BROWN VERY STIFF SANDY CLAY (A-6) METAMORPHOSED QUARTZ DIORITE					
740																	
	737.0	13.5	60/0.1										737.0 CRYSTALLINE ROCK 13.5				
													736.9 METAMORPHOSED QUARTZ DIORITE 13.6				
													Boring Terminated by Auger Refusal at Elevation 736.9 ft In Crystalline Rock				

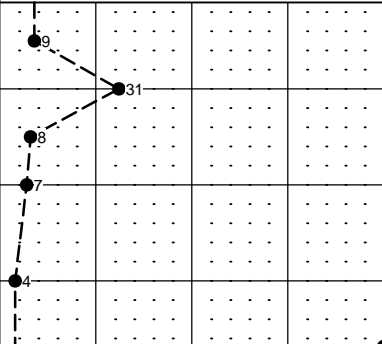
WBS		-		TIP		-		COUNTY		MECKLENBURG		GEOLOGIST		Rodriguez, A.									
SITE DESCRIPTION													Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)			GROUND WTR (ft)							
BORING NO.			DR2_1250		STATION			12+49		OFFSET			2 ft LT		ALIGNMENT		-DR2-		0 HR.	Dry			
COLLAR ELEV.			745.4 ft		TOTAL DEPTH			29.6 ft		NORTHING			543,191		EASTING		1,413,851		24 HR.	N/A			
DRILL RIG/HAMMER EFF./DATE										SME6573 CME-550X 84% 10/01/2020				DRILL METHOD				Wash Boring		HAMMER TYPE		Automatic	
DRILLER				J. Marlowe		START DATE			07/15/21		COMP. DATE			07/15/21		SURFACE WATER DEPTH					N/A		
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION									
			0.5ft	0.5ft	0.5ft	0	25	50	75	100													
750																							
745																							
740	744.4	1.0		6	6	8																	
	741.9	3.5		7	7	8																	
	739.4	6.0		1	2	4																	
735	736.9	8.5		2	2	3																	
	731.9	13.5		1	3	5																	
730																							
725	726.9	18.5		13	19	21																	
	721.9	23.5		52	48/0.3																		
720																							
	716.9	28.5		32	75	25/0.1																	

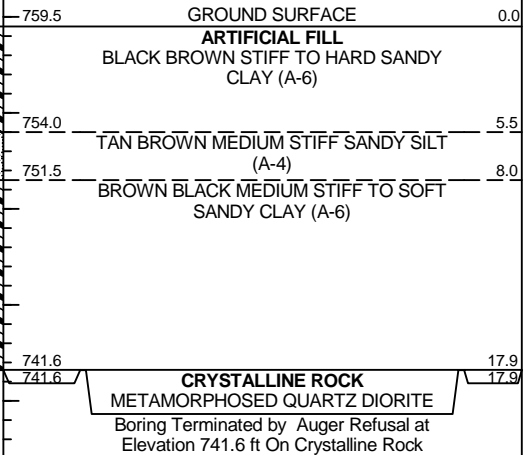
NCDOT BORE DOUBLE CHARLOTTE NEAT PHASE 01 OVERLOOK RDY.GPJ NC\_DOT.GDT 3/9/23

GEOTECHNICAL BORING REPORT  
BORE LOG

WBS -			TIP -			COUNTY MECKLENBURG			GEOLOGIST Rodriguez, A.						
SITE DESCRIPTION Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)												GROUND WTR (ft)			
BORING NO. DR3_1050			STATION 10+39			OFFSET 1 ft RT			ALIGNMENT -DR3-			0 HR.	Dry		
COLLAR ELEV. 752.0 ft			TOTAL DEPTH 27.3 ft			NORTHING 542,633			EASTING 1,413,767			24 HR.	N/A		
DRILL RIG/HAMMER EFF./DATE SME6573 CME-550X 84% 10/01/2020						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic						
DRILLER S. Gowan			START DATE 07/21/21			COMP. DATE 07/21/21			SURFACE WATER DEPTH N/A						
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)
755															
750	751.0	1.0	2	3	4									752.0	0.0
	748.5	3.5	2	3	2									749.0	3.0
745	746.0	6.0	2	3	3										
	743.5	8.5	2	1	3						SS-12	19%		744.0	8.0
740															
	738.5	13.5	2	1	6										
735															
	733.5	18.5	2	2	2									735.0	17.0
730											SS-1	15%			
	728.5	23.5	50	50/0.2										730.0	22.0
725	724.7	27.3	60/0											724.7	27.3
														724.7	27.3

NCDOT BORE DOUBLE CHARLOTTE NEAT PHASE 01 OVERLOOK RDY.GPJ NC\_DOT.GDT 3/9/23

WBS -			TIP -			COUNTY MECKLENBURG			GEOLOGIST Rodriguez, A.					
SITE DESCRIPTION Charlotte Airport NEAT - Airport Overlook Drive Relocation (S&ME Project 1335-19-012)											GROUND WTR (ft)			
BORING NO. DR3_1250			STATION 11+64			OFFSET 35 ft RT			ALIGNMENT -DR3-			0 HR.	Dry	
COLLAR ELEV. 759.5 ft			TOTAL DEPTH 17.9 ft			NORTHING 542,605			EASTING 1,413,894			24 HR.	N/A	
DRILL RIG/HAMMER EFF./DATE SME8245 CME-55 90% 07/23/2021						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic					
DRILLER T. Miller			START DATE 07/09/21			COMP. DATE 07/09/21			SURFACE WATER DEPTH N/A					
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
760														
755	758.5	1.0	1	3	6									759.5 GROUND SURFACE 0.0
	756.0	3.5	3	8	23									ARTIFICIAL FILL BLACK BROWN STIFF TO HARD SANDY CLAY (A-6)
750	753.5	6.0	7	3	5									754.0 TAN BROWN MEDIUM STIFF SANDY SILT (A-4) 5.5
	751.0	8.5	2	3	4									751.5 BROWN BLACK MEDIUM STIFF TO SOFT SANDY CLAY (A-6) 8.0
745	746.0	13.5	3	2	2									
	741.6	17.9	60/0			60/0								741.6 17.9
											CRYSTALLINE ROCK METAMORPHOSED QUARTZ DIORITE Boring Terminated by Auger Refusal at Elevation 741.6 ft On Crystalline Rock			



## Summary of Laboratory Testing Results

Test Location	Sample ID	Sample Depth (feet)	AASHTO Classification	Moisture Content (%)	Fines (%)	Liquid Limit	Plastic Limit	Plasticity Index	Organic Content (%)
DR3_1050	SS-1	18.5 - 20	-	15.3	-	-	-	-	6.5
L_3000	SS-2	6 - 7.5	-	21.8	-	-	-	-	9.8
L_3200LT	SS-3	8.5 - 10	-	21.9	-	-	-	-	6.8
L_3400	SS-4	3.5 - 5	-	23.9	-	-	-	-	8.7
L_3400	SS-5	8.5 - 10	-	23.0	-	-	-	-	5.3
L_3600	SS-6	8.5 - 10	-	27.2	-	-	-	-	19.1
L_3600 LT	SS-7	3.5 - 5	-	18.7	-	-	-	-	4.8
L_4200	SS-8	1 - 2.5	-	13.9	-	-	-	-	5.8
L_4400LT	SS-9	3.5 - 5	-	26.0	-	-	-	-	8.2
L_4600	SS-10	28.5 - 30	-	12.3	-	-	-	-	1.7
L_4650	SS-11	6 - 7.5	-	37.0	-	-	-	-	4.5
DR3_1050	SS-12	6 - 7.5	A-6	18.5	56.4	39	24	15	-
DR1_1250	SS-13	8.5 - 10	A-7-5	52.1	92.6	63	40	23	-
L_2400	SS-14	1 - 2.5	A-6	15.5	50.6	34	18	16	-
L_3000	SS-15	18.5 - 20	A-7-5	34.2	58.1	48	30	18	-
L_3200	SS-16	18.5 - 20	A-7-5	29.9	62.1	43	30	13	-
L_3400	SS-17	13.5 - 15	A-7-6	17.9	54.4	43	23	20	-
L_4650LT	SS-18	13.5 - 15	A-7-5	43.6	77.5	47	35	12	-



# MOISTURE, ASH, AND ORGANIC MATTER



## AASHTO T-267

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27/21-9/7/21
Client Name:	Talbert, Bright & Ellington, Inc.		
Client Address:	3525 Whitehall Park Drive, Suite 210, Charlotte, NC 28273		
Boring No.	DR3_1050	Sample No.	SS-1
Location:	NI	Sample Date:	July 2021
		Depth (ft):	18.5-20

Sample Description:

Equipment: Balance: 0.01 g. Readability, 500g. Minimum Capacity

Balance: S&ME ID #: 20233 Cal. Date: 9/22/20 Due: 9/22/21

Method A: Moisture Content Determination

Required Oven Temperature:  $110 \pm 5^\circ \text{C}$

Oven Temperature: $110^\circ \text{C}$		Tare #	TW-48
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	8.45
a	Mass of As-Received Specimen + Tare Wt.	grams	141.38
b	Mass of Oven Dry Specimen + Tare Wt.	grams	123.79
w	Water Weight	(a-b)	17.59
A	Mass of As-Received Specimen	(a-t)	132.93
B	Mass of Oven Dry Specimen	(b-t)	115.34
% Moisture Content as a % of As Received or Total Mass		(w/A)*100	13.2%
% Moisture Content as a % of Oven-dried Mass		(w/B)*100	15.3%

Oven S&ME ID #: 10844 Cal. Date: 2/11/21 Due: 2/11/22

Method A ( $440^\circ \text{C}$ ) : Ash Content and Organic Matter Determination

Muffle Furnace: $440^\circ \text{C}$		Tare #	C
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	45.02
b	Mass of Oven Dry Specimen + Tare Wt.	grams	74.85
c	Ash Weight + Tare Wt.	grams	72.92
C	Ash Weight	c-t	27.90
B	Mass of Oven Dry Specimen	(b-t)	29.83
D	% Ash Content	(C/B)*100	93.5%
	% Organic Matter	100-D	6.5%

Muffle Furnace: S&ME ID #: 30335

Notes / Deviations / References: AASHTO T-267

Karen Warner  
Technician Name

9/7/2021  
Date

Signature

NCDOT Tier III  
Level/Certification

Luis Campos, P.E.  
Technical Responsibility

Signature

Project Engineer  
Position

March 2023  
Date

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# MOISTURE, ASH, AND ORGANIC MATTER



## AASHTO T-267

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27-9/7/21
Client Name:	Talbert, Bright & Ellington, Inc.		
Client Address:	3525 Whitehall Park Drive, Suite 210, Charlotte, NC 28273		
Boring No.	L_3000	Sample No.	SS-2
Location:	NI	Sample Date:	July 2021
		Depth (ft):	6-7.5

Sample Description:

Equipment: Balance: 0.01 g. Readability, 500g. Minimum Capacity

Balance: S&ME ID #: 20233 Cal. Date: 9/22/20 Due: 9/22/21

Method A: Moisture Content Determination

Required Oven Temperature:  $110 \pm 5^\circ \text{C}$

Oven Temperature: $110^\circ \text{C}$		Tare #	TW-61
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	8.11
a	Mass of As-Received Specimen + Tare Wt.	grams	144.31
b	Mass of Oven Dry Specimen + Tare Wt.	grams	119.95
w	Water Weight	(a-b)	24.36
A	Mass of As-Received Specimen	(a-t)	136.20
B	Mass of Oven Dry Specimen	(b-t)	111.84
% Moisture Content as a % of As Received or Total Mass		(w/A)*100	17.9%
% Moisture Content as a % of Oven-dried Mass		(w/B)*100	21.8%

Oven S&ME ID #: 10844 Cal. Date: 2/11/21 Due: 2/11/22

Method A ( $440^\circ \text{C}$ ) : Ash Content and Organic Matter Determination

Muffle Furnace: $440^\circ \text{C}$		Tare #	C
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	45.02
b	Mass of Oven Dry Specimen + Tare Wt.	grams	75.84
c	Ash Weight + Tare Wt.	grams	72.82
C	Ash Weight	c-t	27.80
B	Mass of Oven Dry Specimen	(b-t)	30.82
D	% Ash Content	(C/B)*100	90.2%
	% Organic Matter	100-D	9.8%

Muffle Furnace: S&ME ID #: 30335

Notes / Deviations / References: AASHTO T-267

Karen Warner  
Technician Name

9/7/2021  
Date

Signature

NCDOT Tier III  
Level/Certification

Luis Campos, P.E.  
Technical Responsibility

Signature

Project Engineer  
Position

March 2023  
Date

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# MOISTURE, ASH, AND ORGANIC MATTER



## AASHTO T-267

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27/21-9/7/21
Client Name:	Talbert, Bright & Ellington, Inc.		
Client Address:	3525 Whitehall Park Drive, Suite 210, Charlotte, NC 28273		
Boring No.	L_3200 LT	Sample No.	SS-3
Location:	NI	Sample Date:	July 2021
		Depth (ft):	8.5-10

Sample Description:

Equipment: Balance: 0.01 g. Readability, 500g. Minimum Capacity

Balance: S&ME ID #: 20233 Cal. Date: 9/22/20 Due: 9/22/21

Method A: Moisture Content Determination

Required Oven Temperature:  $110 \pm 5^\circ \text{C}$

Oven Temperature: $110^\circ \text{C}$		Tare #	dT_21
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	8.11
a	Mass of As-Received Specimen + Tare Wt.	grams	124.95
b	Mass of Oven Dry Specimen + Tare Wt.	grams	103.94
w	Water Weight	(a-b)	21.01
A	Mass of As-Received Specimen	(a-t)	116.84
B	Mass of Oven Dry Specimen	(b-t)	95.83
% Moisture Content as a % of As Received or Total Mass		(w/A)*100	18.0%
% Moisture Content as a % of Oven-dried Mass		(w/B)*100	21.9%

Oven S&ME ID #: 10844 Cal. Date: 2/11/21 Due: 2/11/22

Method A ( $440^\circ \text{C}$ ) : Ash Content and Organic Matter Determination

Muffle Furnace: $440^\circ \text{C}$		Tare #	B
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	49.05
b	Mass of Oven Dry Specimen + Tare Wt.	grams	79.15
c	Ash Weight + Tare Wt.	grams	77.09
C	Ash Weight	c-t	28.04
B	Mass of Oven Dry Specimen	(b-t)	30.10
D	% Ash Content	(C/B)*100	93.2%
	% Organic Matter	100-D	6.8%

Muffle Furnace: S&ME ID #: 30335

Notes / Deviations / References: AASHTO T-267

Karen Warner  
Technician Name

9/7/2021  
Date

Signature

NCDOT Tier III  
Level/Certification

Luis Campos, P.E.  
Technical Responsibility

Signature

Project Engineer  
Position

March 2023  
Date

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# MOISTURE, ASH, AND ORGANIC MATTER



## AASHTO T-267

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27/21-9/7/21
Client Name:	Talbert, Bright & Ellington, Inc.		
Client Address:	3525 Whitehall Park Drive, Suite 210, Charlotte, NC 28273		
Boring No.	L_3400	Sample No.	SS-4
Location:	NI	Sample Date:	July 2021
		Depth (ft):	3.5-5

Sample Description:

Equipment: Balance: 0.01 g. Readability, 500g. Minimum Capacity

Balance: S&ME ID #: 20233 Cal. Date: 9/22/20 Due: 9/22/21

Method A: Moisture Content Determination

Required Oven Temperature:  $110 \pm 5^\circ \text{C}$

Oven Temperature: $110^\circ \text{C}$		Tare #	DT-20
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	8.07
a	Mass of As-Received Specimen + Tare Wt.	grams	116.71
b	Mass of Oven Dry Specimen + Tare Wt.	grams	95.78
w	Water Weight	(a-b)	20.93
A	Mass of As-Received Specimen	(a-t)	108.64
B	Mass of Oven Dry Specimen	(b-t)	87.71
% Moisture Content as a % of As Received or Total Mass		(w/A)*100	19.3%
% Moisture Content as a % of Oven-dried Mass		(w/B)*100	23.9%

Oven S&ME ID #: 10844 Cal. Date: 2/11/21 Due: 2/11/22

Method A ( $440^\circ \text{C}$ ) : Ash Content and Organic Matter Determination

Muffle Furnace: $440^\circ \text{C}$		Tare #	E
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	46.45
b	Mass of Oven Dry Specimen + Tare Wt.	grams	76.24
c	Ash Weight + Tare Wt.	grams	73.64
C	Ash Weight	c-t	27.19
B	Mass of Oven Dry Specimen	(b-t)	29.79
D	% Ash Content	(C/B)*100	91.3%
	% Organic Matter	100-D	8.7%

Muffle Furnace: S&ME ID #: 30335

Notes / Deviations / References: AASHTO T-267

Karen Warner  
Technician Name

9/7/2021  
Date

Signature

NCDOT Tier III  
Level/Certification

Luis Campos, P.E.  
Technical Responsibility

Signature

Project Engineer  
Position

March 2023  
Date

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# MOISTURE, ASH, AND ORGANIC MATTER



## AASHTO T-267

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27/21-9/7/21
Client Name:	Talbert, Bright & Ellington, Inc.		
Client Address:	3525 Whitehall Park Drive, Suite 210, Charlotte, NC 28273		
Boring No.	L_3400	Sample No.	SS-5
Location:	NI	Sample Date:	July 2021
		Depth (ft):	8.5-10

Sample Description:

Equipment: Balance: 0.01 g. Readability, 500g. Minimum Capacity

Balance: S&ME ID #: 20233 Cal. Date: 9/22/20 Due: 9/22/21

Method A: Moisture Content Determination

Required Oven Temperature:  $110 \pm 5^\circ \text{C}$

Oven Temperature: $110^\circ \text{C}$		Tare #	TW-35
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	8.03
a	Mass of As-Received Specimen + Tare Wt.	grams	152.65
b	Mass of Oven Dry Specimen + Tare Wt.	grams	125.62
w	Water Weight	(a-b)	27.03
A	Mass of As-Received Specimen	(a-t)	144.62
B	Mass of Oven Dry Specimen	(b-t)	117.59
% Moisture Content as a % of As Received or Total Mass		(w/A)*100	18.7%
% Moisture Content as a % of Oven-dried Mass		(w/B)*100	23.0%

Oven S&ME ID #: 10844 Cal. Date: 2/11/21 Due: 2/11/22

Method A ( $440^\circ \text{C}$ ) : Ash Content and Organic Matter Determination

Muffle Furnace: $440^\circ \text{C}$		Tare #	C
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	45.17
b	Mass of Oven Dry Specimen + Tare Wt.	grams	96.84
c	Ash Weight + Tare Wt.	grams	94.10
C	Ash Weight	c-t	48.93
B	Mass of Oven Dry Specimen	(b-t)	51.67
D	% Ash Content	(C/B)*100	94.7%
	% Organic Matter	100-D	5.3%

Muffle Furnace: S&ME ID #: 30335

Notes / Deviations / References: AASHTO T-267

Gustavo Salazar  
Technician Name

9/7/2021  
Date

Signature

NCDOT Tier 1  
Level/Certification

Luis Campos, P.E.  
Technical Responsibility

Signature

Project Engineer  
Position

March 2023  
Date

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# MOISTURE, ASH, AND ORGANIC MATTER



## AASHTO T-267

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27/21-9/7/21
Client Name:	Talbert, Bright & Ellington, Inc.		
Client Address:	3525 Whitehall Park Drive, Suite 210, Charlotte, NC 28273		
Boring No.	L_3600	Sample No.	SS-6
Location:	NI	Sample Date:	July 2021
		Depth (ft):	8.5-10

Sample Description:

Equipment: Balance: 0.01 g. Readability, 500g. Minimum Capacity

Balance: S&ME ID #: 20233 Cal. Date: 9/22/20 Due: 9/22/21

Method A: Moisture Content Determination

Required Oven Temperature:  $110 \pm 5^\circ \text{C}$

Oven Temperature: $110^\circ \text{C}$		Tare #	TW-45
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	8.07
a	Mass of As-Received Specimen + Tare Wt.	grams	299.19
b	Mass of Oven Dry Specimen + Tare Wt.	grams	236.89
w	Water Weight	(a-b)	62.30
A	Mass of As-Received Specimen	(a-t)	291.12
B	Mass of Oven Dry Specimen	(b-t)	228.82
% Moisture Content as a % of As Received or Total Mass		(w/A)*100	21.4%
% Moisture Content as a % of Oven-dried Mass		(w/B)*100	27.2%

Oven S&ME ID #: 10844 Cal. Date: 2/11/21 Due: 2/11/22

Method A ( $440^\circ \text{C}$ ) : Ash Content and Organic Matter Determination

Muffle Furnace: $440^\circ \text{C}$		Tare #	E
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	46.42
b	Mass of Oven Dry Specimen + Tare Wt.	grams	96.76
c	Ash Weight + Tare Wt.	grams	87.12
C	Ash Weight	c-t	40.70
B	Mass of Oven Dry Specimen	(b-t)	50.34
D	% Ash Content	(C/B)*100	80.9%
	% Organic Matter	100-D	19.1%

Muffle Furnace: S&ME ID #: 30335

Notes / Deviations / References: AASHTO T-267

Gustavo Salazar  
Technician Name

9/7/2021  
Date

Signature

NCDOT Tier I  
Level/Certification

Luis Campos, P.E.  
Technical Responsibility

Signature

Project Engineer  
Position

March 2023  
Date

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# MOISTURE, ASH, AND ORGANIC MATTER



## AASHTO T-267

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27/21-9/7/21
Client Name:	Talbert, Bright & Ellington, Inc.		
Client Address:	3525 Whitehall Park Drive, Suite 210, Charlotte, NC 28273		
Boring No.	L_3600 LT	Sample No.	SS-7
Location:	NI	Sample Date:	July 2021
		Depth (ft):	3.5-5

Sample Description:

Equipment: Balance: 0.01 g. Readability, 500g. Minimum Capacity

Balance: S&ME ID #: 20233 Cal. Date: 9/22/20 Due: 9/22/21

Method A: Moisture Content Determination

Required Oven Temperature:  $110 \pm 5^\circ \text{C}$

Oven Temperature: $110^\circ \text{C}$		Tare #	WD-1
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	8.06
a	Mass of As-Received Specimen + Tare Wt.	grams	251.43
b	Mass of Oven Dry Specimen + Tare Wt.	grams	213.14
w	Water Weight	(a-b)	38.29
A	Mass of As-Received Specimen	(a-t)	243.37
B	Mass of Oven Dry Specimen	(b-t)	205.08
% Moisture Content as a % of As Received or Total Mass		(w/A)*100	15.7%
% Moisture Content as a % of Oven-dried Mass		(w/B)*100	18.7%

Oven S&ME ID #: 10844 Cal. Date: 2/11/21 Due: 2/11/22

Method A ( $440^\circ \text{C}$ ) : Ash Content and Organic Matter Determination

Muffle Furnace: $440^\circ \text{C}$		Tare #	D
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	46.07
b	Mass of Oven Dry Specimen + Tare Wt.	grams	97.32
c	Ash Weight + Tare Wt.	grams	94.88
C	Ash Weight	c-t	48.81
B	Mass of Oven Dry Specimen	(b-t)	51.25
D	% Ash Content	(C/B)*100	95.2%
	% Organic Matter	100-D	4.8%

Muffle Furnace: S&ME ID #: 30335

Notes / Deviations / References: AASHTO T-267

Gustavo Salazar  
Technician Name

9/7/2021  
Date

Signature

NCDOT Tier I  
Level/Certification

Luis Campos, P.E.  
Technical Responsibility

Signature

Project Engineer  
Position

March 2023  
Date

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# MOISTURE, ASH, AND ORGANIC MATTER



## AASHTO T-267

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27/21-9/7/21
Client Name:	Talbert, Bright & Ellington, Inc.		
Client Address:	3525 Whitehall Park Drive, Suite 210, Charlotte, NC 28273		
Boring No.	L_4200	Sample No.	SS-8
Location:	NI	Sample Date:	July 2021
		Depth (ft):	1-2.5

Sample Description:

Equipment: Balance: 0.01 g. Readability, 500g. Minimum Capacity

Balance: S&ME ID #: 20233 Cal. Date: 9/22/20 Due: 9/22/21

Method A: Moisture Content Determination

Required Oven Temperature:  $110 \pm 5^\circ \text{C}$

Oven Temperature: $110^\circ \text{C}$		Tare #	DT-18
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	8.02
a	Mass of As-Received Specimen + Tare Wt.	grams	190.47
b	Mass of Oven Dry Specimen + Tare Wt.	grams	168.25
w	Water Weight	(a-b)	22.22
A	Mass of As-Received Specimen	(a-t)	182.45
B	Mass of Oven Dry Specimen	(b-t)	160.23
% Moisture Content as a % of As Received or Total Mass		(w/A)*100	12.2%
% Moisture Content as a % of Oven-dried Mass		(w/B)*100	13.9%

Oven S&ME ID #: 10844 Cal. Date: 2/11/21 Due: 2/11/22

Method A ( $440^\circ \text{C}$ ) : Ash Content and Organic Matter Determination

Muffle Furnace: $440^\circ \text{C}$		Tare #	B
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	48.88
b	Mass of Oven Dry Specimen + Tare Wt.	grams	78.23
c	Ash Weight + Tare Wt.	grams	76.53
C	Ash Weight	c-t	27.65
B	Mass of Oven Dry Specimen	(b-t)	29.35
D	% Ash Content	(C/B)*100	94.2%
	% Organic Matter	100-D	5.8%

Muffle Furnace: S&ME ID #: 30335

Notes / Deviations / References: AASHTO T-267

Karen Warner  
Technician Name

9/7/2021  
Date

Signature

NCDOT Tier III  
Level/Certification

Luis Campos, P.E.  
Technical Responsibility

Signature

Project Engineer  
Position

March 2023  
Date

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# MOISTURE, ASH, AND ORGANIC MATTER



## AASHTO T-267

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27/21-9/7/21
Client Name:	Talbert, Bright & Ellington, Inc.		
Client Address:	3525 Whitehall Park Drive, Suite 210, Charlotte, NC 28273		
Boring No.	L_4400 LT	Sample No.	SS-9
Location:	NI	Sample Date:	July 2021
		Depth (ft):	3.5-5

Sample Description:

Equipment: Balance: 0.01 g. Readability, 500g. Minimum Capacity

Balance: S&ME ID #: 20233 Cal. Date: 9/22/20 Due: 9/22/21

Method A: Moisture Content Determination

Required Oven Temperature:  $110 \pm 5^\circ \text{C}$

Oven Temperature: $110^\circ \text{C}$		Tare #	DT-17
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	8.07
a	Mass of As-Received Specimen + Tare Wt.	grams	190.13
b	Mass of Oven Dry Specimen + Tare Wt.	grams	152.52
w	Water Weight	(a-b)	37.61
A	Mass of As-Received Specimen	(a-t)	182.06
B	Mass of Oven Dry Specimen	(b-t)	144.45
% Moisture Content as a % of As Received or Total Mass		(w/A)*100	20.7%
% Moisture Content as a % of Oven-dried Mass		(w/B)*100	26.0%

Oven S&ME ID #: 10844 Cal. Date: 2/11/21 Due: 2/11/22

Method A ( $440^\circ \text{C}$ ) : Ash Content and Organic Matter Determination

Muffle Furnace: $440^\circ \text{C}$		Tare #	DT-17
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	46.06
b	Mass of Oven Dry Specimen + Tare Wt.	grams	75.60
c	Ash Weight + Tare Wt.	grams	73.19
C	Ash Weight	c-t	27.13
B	Mass of Oven Dry Specimen	(b-t)	29.54
D	% Ash Content	(C/B)*100	91.8%
	% Organic Matter	100-D	8.2%

Muffle Furnace: S&ME ID #: 30335

Notes / Deviations / References: AASHTO T-267

Karen Warner  
Technician Name

9/7/2021  
Date

Signature

NCDOT Tier III  
Level/Certification

Luis Campos, P.E.  
Technical Responsibility

Signature

Project Engineer  
Position

March 2023  
Date

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# MOISTURE, ASH, AND ORGANIC MATTER



## AASHTO T-267

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27/21-9/7/21
Client Name:	Talbert, Bright & Ellington, Inc.		
Client Address:	3525 Whitehall Park Drive, Suite 210, Charlotte, NC 28273		
Boring No.	L_4600	Sample No.	SS-10
Location:	NI	Sample Date:	July 2021
		Depth (ft):	28.5-30

Sample Description:

Equipment: Balance: 0.01 g. Readability, 500g. Minimum Capacity

Balance: S&ME ID #: 20233 Cal. Date: 9/22/20 Due: 9/22/21

Method A: Moisture Content Determination

Required Oven Temperature:  $110 \pm 5^\circ \text{C}$

Oven Temperature: $110^\circ \text{C}$		Tare #	WD-2
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	8.05
a	Mass of As-Received Specimen + Tare Wt.	grams	249.33
b	Mass of Oven Dry Specimen + Tare Wt.	grams	222.92
w	Water Weight	(a-b)	26.41
A	Mass of As-Received Specimen	(a-t)	241.28
B	Mass of Oven Dry Specimen	(b-t)	214.87
% Moisture Content as a % of As Received or Total Mass		(w/A)*100	10.9%
% Moisture Content as a % of Oven-dried Mass		(w/B)*100	12.3%

Oven S&ME ID #: 10844 Cal. Date: 2/11/21 Due: 2/11/22

Method A ( $440^\circ \text{C}$ ) : Ash Content and Organic Matter Determination

Muffle Furnace: $440^\circ \text{C}$		Tare #	B
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	48.90
b	Mass of Oven Dry Specimen + Tare Wt.	grams	98.99
c	Ash Weight + Tare Wt.	grams	98.16
C	Ash Weight	c-t	49.26
B	Mass of Oven Dry Specimen	(b-t)	50.09
D	% Ash Content	(C/B)*100	98.3%
	% Organic Matter	100-D	1.7%

Muffle Furnace: S&ME ID #: 30335

Notes / Deviations / References: AASHTO T-267

Gustavo Salazar  
Technician Name

9/7/2021  
Date

Signature

NCDOT Tier I  
Level/Certification

Luis Campos, P.E.  
Technical Responsibility

Signature

Project Engineer  
Position

March 2023  
Date

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# MOISTURE, ASH, AND ORGANIC MATTER



## AASHTO T-267

S&ME, Inc. Charlotte: 9751 Southern Pine Boulevard, Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27/21-9/7/21
Client Name:	Talbert, Bright & Ellington, Inc.		
Client Address:	3525 Whitehall Park Drive, Suite 210, Charlotte, NC 28273		
Boring No.	L_4650 LT	Sample No.	SS-11
Location:	NI	Sample Date:	July 2021
		Depth (ft):	6-7.5

Sample Description:

Equipment: Balance: 0.01 g. Readability, 500g. Minimum Capacity

Balance: S&ME ID #: 20233 Cal. Date: 9/22/20 Due: 9/22/21

Method A: Moisture Content Determination

Required Oven Temperature:  $110 \pm 5^\circ \text{C}$

Oven Temperature: $110^\circ \text{C}$		Tare #	WD-3
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	8.09
a	Mass of As-Received Specimen + Tare Wt.	grams	246.60
b	Mass of Oven Dry Specimen + Tare Wt.	grams	182.13
w	Water Weight	(a-b)	64.47
A	Mass of As-Received Specimen	(a-t)	238.51
B	Mass of Oven Dry Specimen	(b-t)	174.04
% Moisture Content as a % of As Received or Total Mass		(w/A)*100	27.0%
% Moisture Content as a % of Oven-dried Mass		(w/B)*100	37.0%

Oven S&ME ID #: 10844 Cal. Date: 2/11/21 Due: 2/11/22

Method A ( $440^\circ \text{C}$ ) : Ash Content and Organic Matter Determination

Muffle Furnace: $440^\circ \text{C}$		Tare #	E
t	Tare Weight (Dish plus Aluminum Foil Cover)	grams	46.41
b	Mass of Oven Dry Specimen + Tare Wt.	grams	96.56
c	Ash Weight + Tare Wt.	grams	94.32
C	Ash Weight	c-t	47.91
B	Mass of Oven Dry Specimen	(b-t)	50.15
D	% Ash Content	(C/B)*100	95.5%
	% Organic Matter	100-D	4.5%

Muffle Furnace: S&ME ID #: 30335

Notes / Deviations / References: AASHTO T-267

Gustavo Salazar  
Technician Name

9/7/2021  
Date

Signature

NCDOT Tier I  
Level/Certification

Luis Campos, P.E.  
Technical Responsibility

Signature

Project Engineer  
Position

March 2023  
Date

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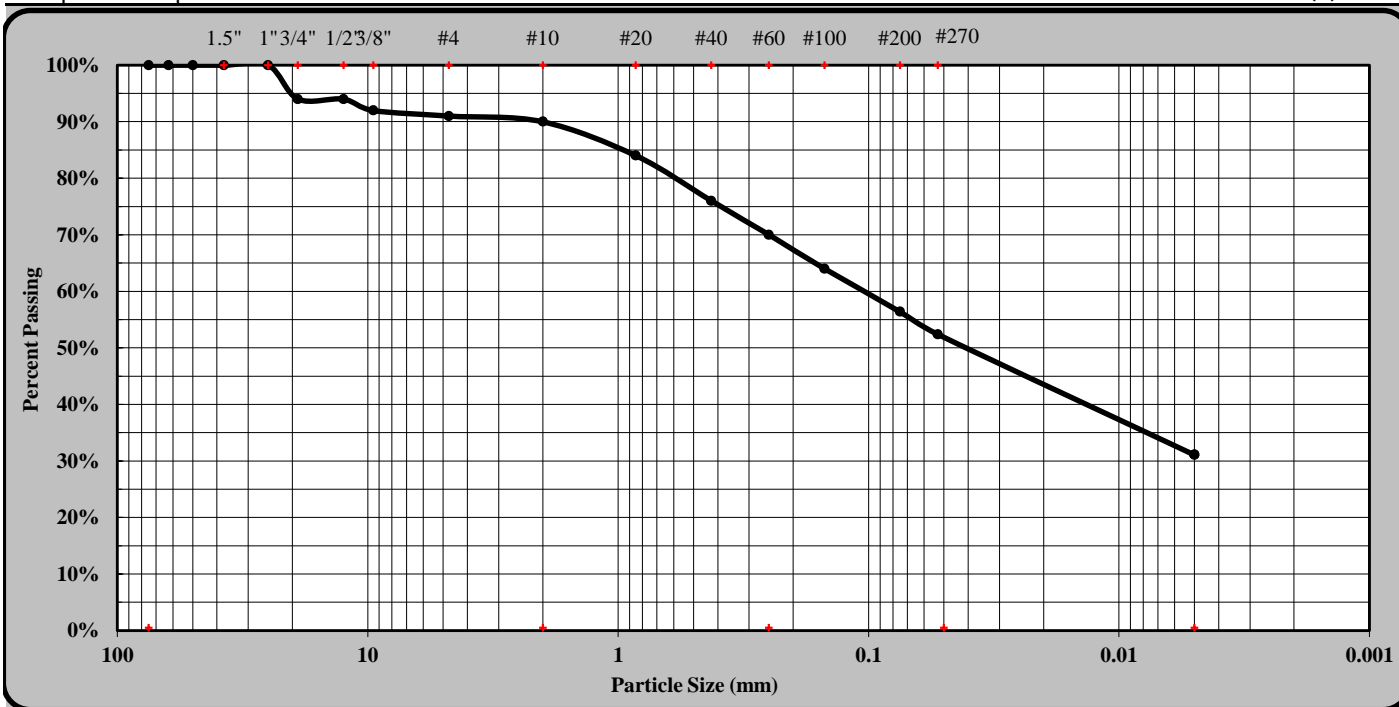
# Particle Size Analysis of Soils

AASHTO T88 as Modified by NCDOT



S&ME, Inc. Charlotte: 9751 Southern Pine Blvd., Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27-9/7/21
State Project #:	NI	F.A. Project No:	NI
Client Name:	Talbert, Bright & Ellington, Inc.	TIP NO:	NI
Address:	3525 Whitehall Park Dr., Suite 210, Charlotte NC		
Boring #:	DR3_1050	Sample #:	SS-12
Station #:	NI	Sample Date:	July 2021
		Offset:	NI
		Depth (ft):	6-7.5
Sample Description:	0 A-6 (6)		



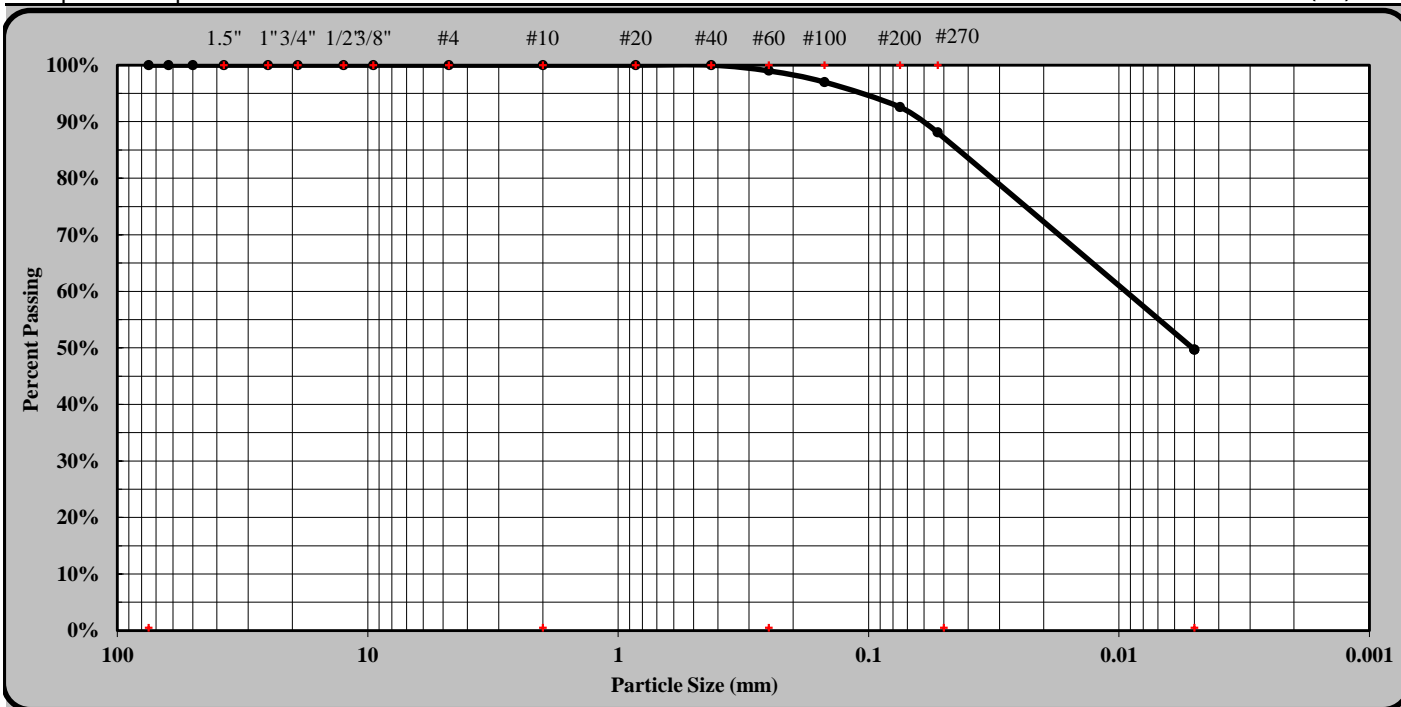
# Particle Size Analysis of Soils

AASHTO T88 as Modified by NCDOT



S&ME, Inc. Charlotte: 9751 Southern Pine Blvd., Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27-9/7/21
State Project #:	NI	F.A. Project No:	NI
Client Name:	Talbert, Bright & Ellington, Inc.	TIP NO:	NI
Address:	3525 Whitehall Park Dr., Suite 210, Charlotte, NC		
Boring #:	DR1_1250	Sample #:	SS-13
Station #:	NI	Sample Date:	July 2021
		Offset:	NI
		Depth (ft):	8.5-10
Sample Description:	0 A-7-5 (28)		



As Defined by NCDOT		Fine Sand		< 0.25 mm and > 0.05 mm	
Gravel	< 75 mm and > 2.00 mm	Silt		< 0.05 and > 0.005 mm	
Coarse Sand	< 2.00 mm and > 0.25 mm	Clay		< 0.005 mm	
Maximum Particle Size	#10	Coarse Sand	1%	Silt	38%
Gravel	0%	Fine Sand	11%	Clay	50%
Apparent Relative Density	ND	Moisture Content	52.1%	% Passing #200	92.6%
Liquid Limit	63	Plastic Limit	40	Plastic Index	23
Soil Mortar (-#10 Sieve)					
Coarse Sand	1%	Fine Sand	11%	Silt	38%
				Clay	50%
Description of Sand & Gravel Particles:	Rounded	<input type="checkbox"/>		Angular	<input checked="" type="checkbox"/>
Hard & Durable	<input checked="" type="checkbox"/>	Soft	<input type="checkbox"/>	Weathered & Friable	<input type="checkbox"/>
References / Comments / Deviations: ND=Not Determined. NI=No Information Provided					

Gustavo Salazar  
Technician Name

NCDOT 118-08-0305  
Certification No.

Lab Technician  
Position

9/7/2021  
Date

Luis Campos, P.E.  
Technical Responsibility

Signature

Project Engineer  
Position

March 2023

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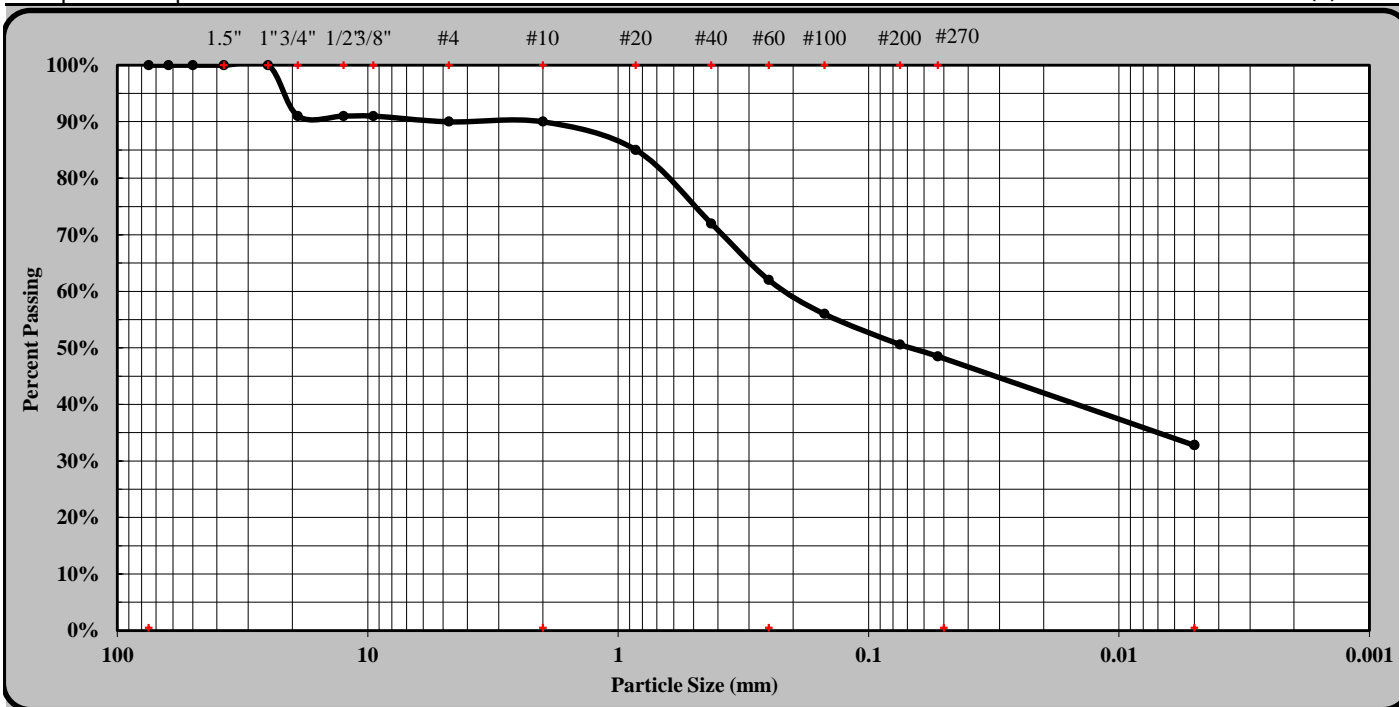
# Particle Size Analysis of Soils

AASHTO T88 as Modified by NCDOT



S&ME, Inc. Charlotte: 9751 Southern Pine Blvd., Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27-9/7/21
State Project #:	NI	F.A. Project No:	NI
Client Name:	Talbert, Bright & Ellington, Inc.	TIP NO:	NI
Address:	3525 Whitehall Park Dr., Suite 210, Charlotte NC		
Boring #:	L-2400	Sample #:	SS-14
Station #:	NI	Sample Date:	July 2021
		Offset:	NI
		Depth (ft):	1-2.5
Sample Description:	0 A-6 (5)		



As Defined by NCDOT		Fine Sand		< 0.25 mm and > 0.05 mm	
Gravel	< 75 mm and > 2.00 mm	Silt		< 0.05 and > 0.005 mm	
Coarse Sand	< 2.00 mm and > 0.25 mm	Clay		< 0.005 mm	
Maximum Particle Size	1.0"	Coarse Sand	28%	Silt	16%
Gravel	10%	Fine Sand	14%	Clay	33%
Apparent Relative Density	ND	Moisture Content	15.5%	% Passing #200	50.6%
Liquid Limit	34	Plastic Limit	18	Plastic Index	16
Soil Mortar (-#10 Sieve)					
Coarse Sand	31%	Fine Sand	15%	Silt	18%
				Clay	36%
Description of Sand & Gravel Particles:	Rounded	<input type="checkbox"/>		Angular	<input checked="" type="checkbox"/>
Hard & Durable	<input checked="" type="checkbox"/>	Soft	<input type="checkbox"/>	Weathered & Friable	<input type="checkbox"/>
References / Comments / Deviations: ND=Not Determined. NI=No Information Provided					

Gustavo Salazar  
Technician Name

NCDOT 118-08-0305  
Certification No.

Lab Technician  
Position

9/7/2021  
Date

Luis Campos, P.E.  
Technical Responsibility

Signature

Project Engineer  
Position

March 2023

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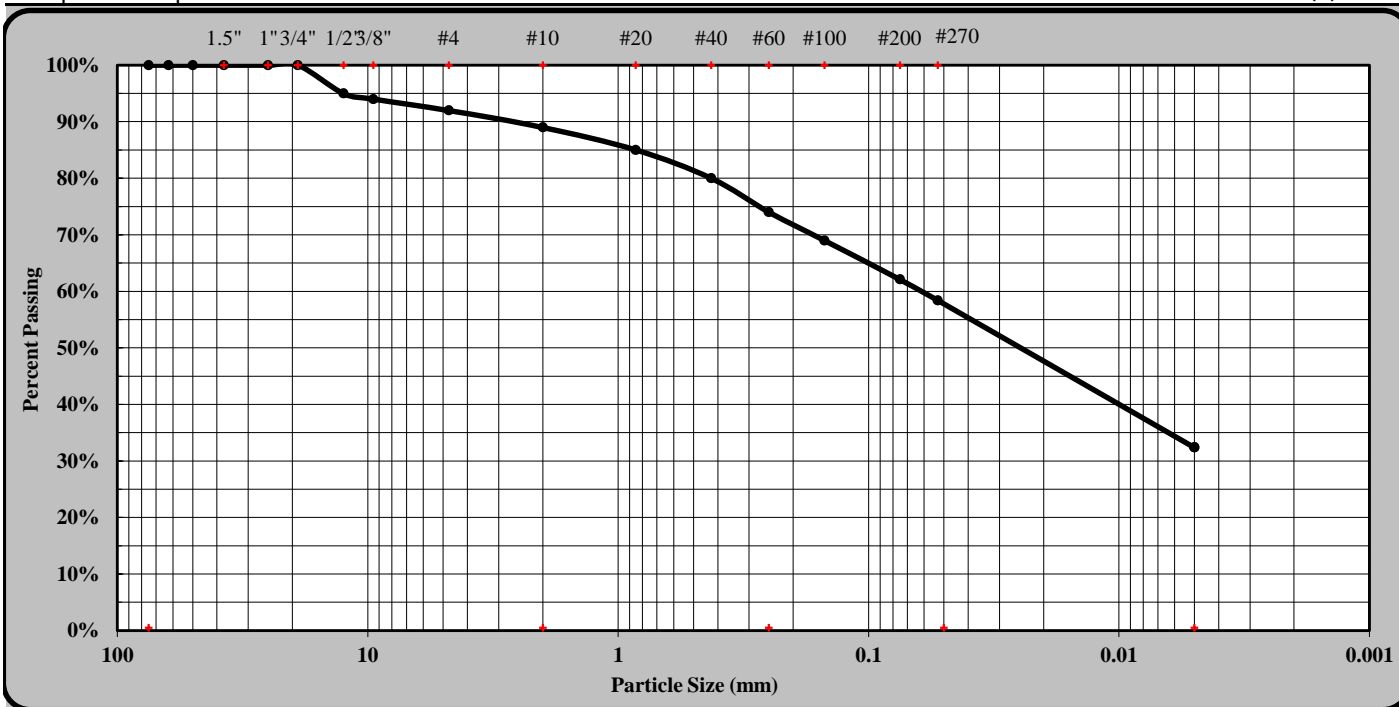
# Particle Size Analysis of Soils

AASHTO T88 as Modified by NCDOT



S&ME, Inc. Charlotte: 9751 Southern Pine Blvd., Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27-9/7/21
State Project #:	NI	F.A. Project No:	NI
Client Name:	Talbert, Bright & Ellington, Inc.	TIP NO:	NI
Address:	3525 Whitehall Park Dr., Suite 210, Charlotte NC		
Boring #:	L_3000	Sample #:	SS-15
Station #:	NI	Sample Date:	July 2021
	Offset:	NI	Depth (ft): 18.5-20
Sample Description:	0 A-7-5 (7)		



As Defined by NCDOT		Fine Sand		< 0.25 mm and > 0.05 mm	
Gravel	< 75 mm and > 2.00 mm	Silt		< 0.05 and > 0.005 mm	
Coarse Sand	< 2.00 mm and > 0.25 mm	Clay		< 0.005 mm	
Maximum Particle Size	3/4"	Coarse Sand	15%	Silt	26%
Gravel	11%	Fine Sand	16%	Clay	32%
Apparent Relative Density	ND	Moisture Content	34.2%	% Passing #200	62.1%
Liquid Limit	43	Plastic Limit	30	Plastic Index	13
Soil Mortar (-#10 Sieve)					
Coarse Sand	17%	Fine Sand	18%	Silt	29%
				Clay	36%
Description of Sand & Gravel Particles:	Rounded	<input type="checkbox"/>		Angular	<input checked="" type="checkbox"/>
Hard & Durable	<input checked="" type="checkbox"/>	Soft	<input type="checkbox"/>	Weathered & Friable	<input type="checkbox"/>
References / Comments / Deviations: ND=Not Determined. NI=No Information Provided					

Gustavo Salazar  
Technician Name

NCDOT 118-08-0305  
Certification No.

Lab Technician  
Position

9/7/2021  
Date

Luis Campos, P.E.  
Technical Responsibility

Signature

Project Engineer  
Position

March 2023

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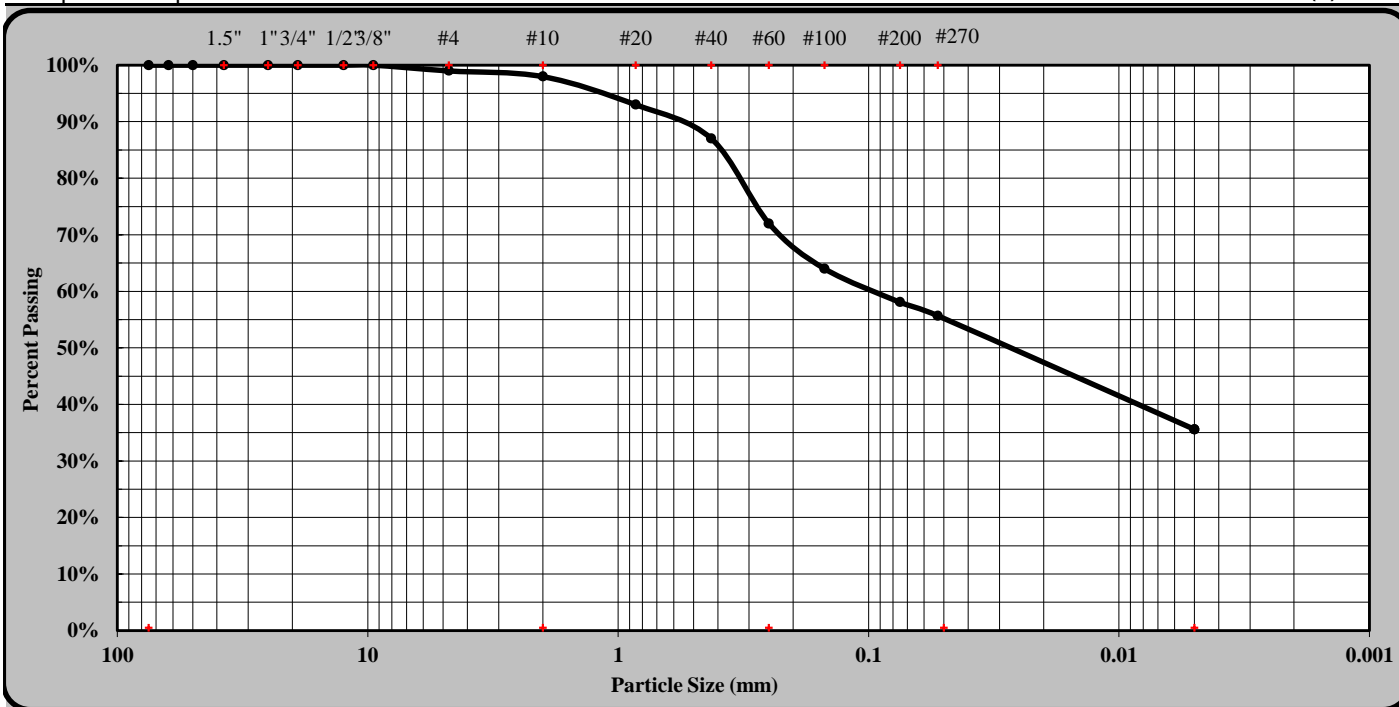
# Particle Size Analysis of Soils

AASHTO T88 as Modified by NCDOT



S&ME, Inc. Charlotte: 9751 Southern Pine Blvd., Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27-9/7/21
State Project #:	NI	F.A. Project No:	NI
Client Name:	Talbert, Bright & Ellington, Inc.	TIP NO:	NI
Address:	3525 Whitehall Park Dr., Suite 210, Charlotte NC		
Boring #:	L_3200	Sample #:	SS-16
Station #:	NI	Sample Date:	July 2021
	Offset:	NI	Depth (ft): 18.5-20
Sample Description:	0 A-7-5 (9)		



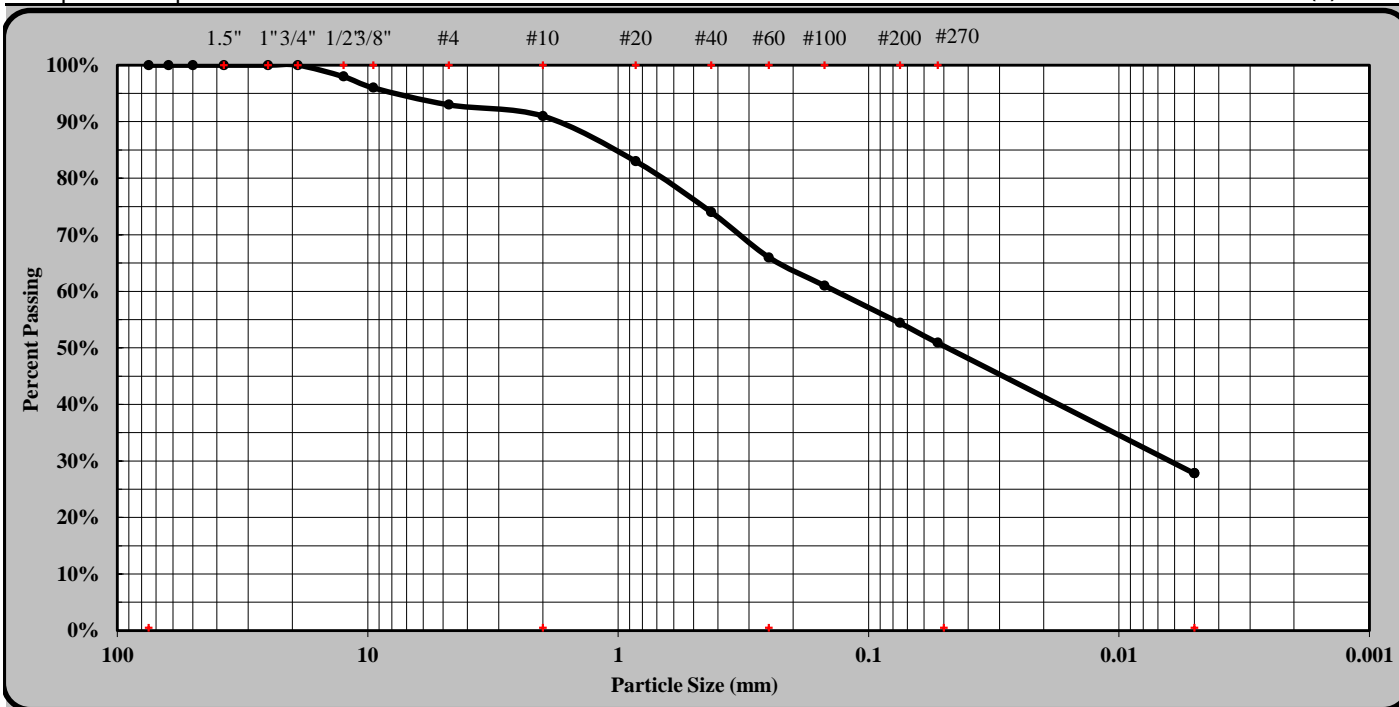
# Particle Size Analysis of Soils

AASHTO T88 as Modified by NCDOT



S&ME, Inc. Charlotte: 9751 Southern Pine Blvd., Charlotte, NC 28273

Project #:	1335-19-012 (01)	Report Date:	9/7/21
Project Name:	Charlotte NEAT - Airport Overlook Relocation	Test Date(s):	7/27-9/7/21
State Project #:	NI	F.A. Project No:	NI
Client Name:	Talbert, Bright & Ellington, Inc.	TIP NO:	NI
Address:	3525 Whitehall Park Dr., Suite 210, Charlotte, NC		
Boring #:	L_3400	Sample #:	SS-17
Station #:	NI	Sample Date:	July 2021
		Depth (ft):	13.5-15
Sample Description:	0 A-7-6 (8)		



As Defined by NCDOT		Fine Sand		< 0.25 mm and > 0.05 mm	
Gravel	< 75 mm and > 2.00 mm	Silt		< 0.05 and > 0.005 mm	
Coarse Sand	< 2.00 mm and > 0.25 mm	Clay		< 0.005 mm	
Maximum Particle Size	3/4"	Coarse Sand	25%	Silt	23%
Gravel	9%	Fine Sand	15%	Clay	28%
Apparent Relative Density	ND	Moisture Content	17.9%	% Passing #200	54.4%
Liquid Limit	43	Plastic Limit	23	Plastic Index	20
Soil Mortar (-#10 Sieve)					
Coarse Sand	27%	Fine Sand	17%	Silt	25%
				Clay	31%
Description of Sand & Gravel Particles:	Rounded	<input type="checkbox"/>		Angular	<input checked="" type="checkbox"/>
Hard & Durable	<input checked="" type="checkbox"/>	Soft	<input type="checkbox"/>	Weathered & Friable	<input type="checkbox"/>
References / Comments / Deviations: ND=Not Determined. NI=No Information Provided					

Gustavo Salazar  
Technician Name

NCDOT 118-08-0305  
Certification No.

Lab Technician  
Position

9/7/2021  
Date

Luis Campos, P.E.  
Technical Responsibility

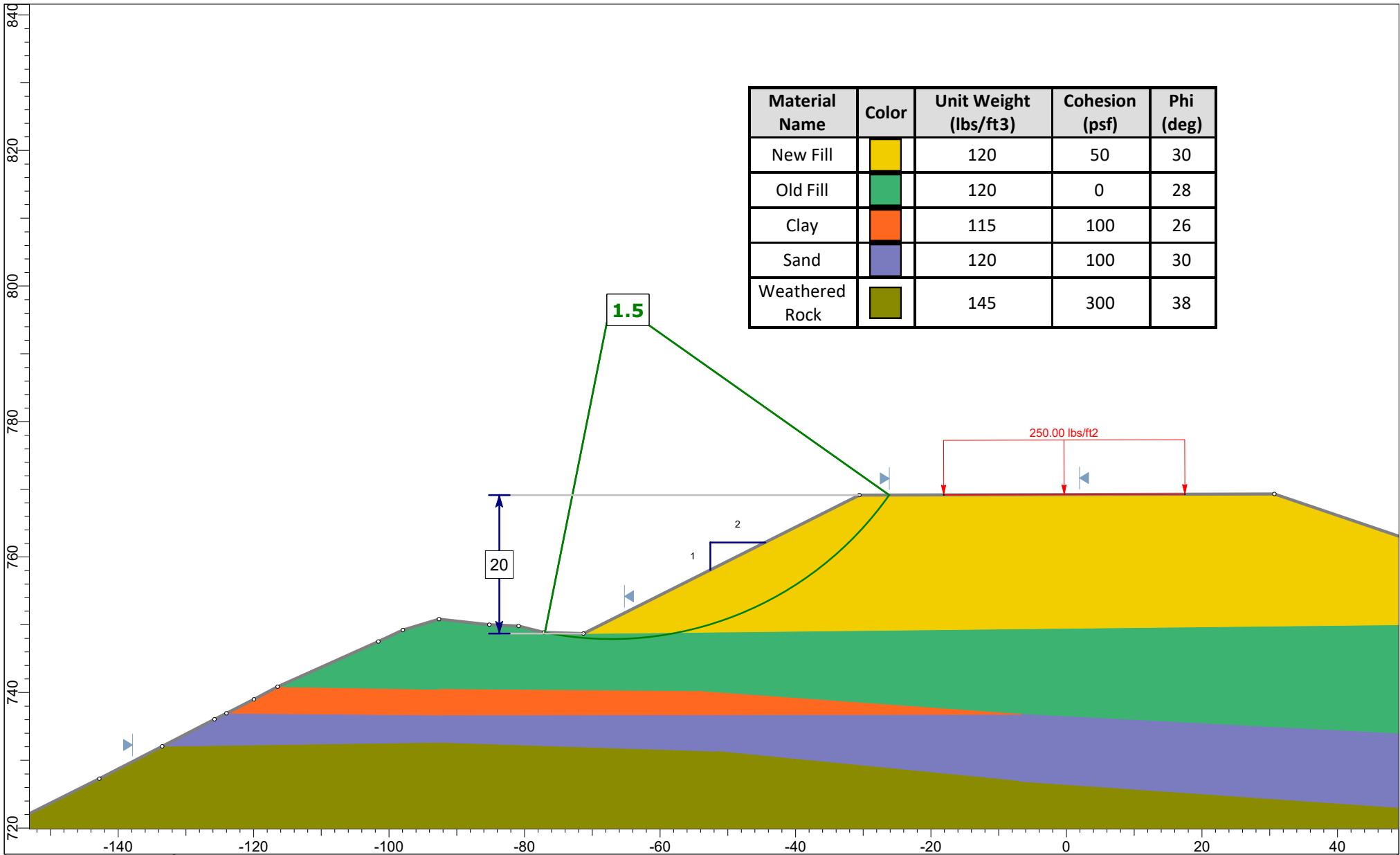
Signature

Project Engineer  
Position

March 2023

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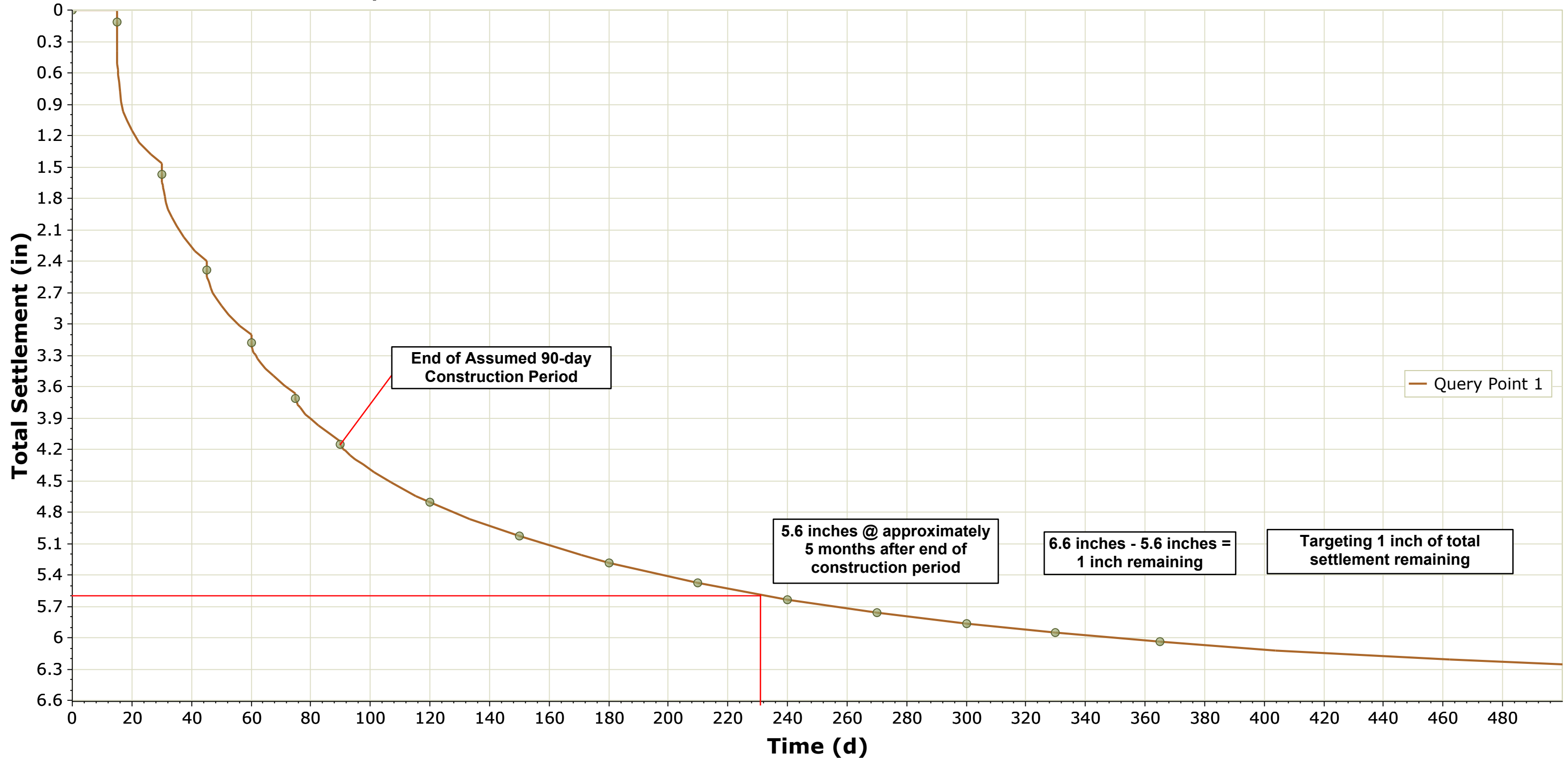




Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (deg)
New Fill	Yellow	120	50	30
Old Fill	Green	120	0	28
Clay	Orange	115	100	26
Sand	Purple	120	100	30
Weathered Rock	Brown	145	300	38

	Project		NEAT	
	Analysis		-L- 36+00 LT	
	Description		Proposed Slope	
	Figure		A	
	Drawn By	SEM	Project Number	1335-19-012
	Location	—	File Name	36+00.slmd
	Company		S&ME	
	Date		3/8/2023	

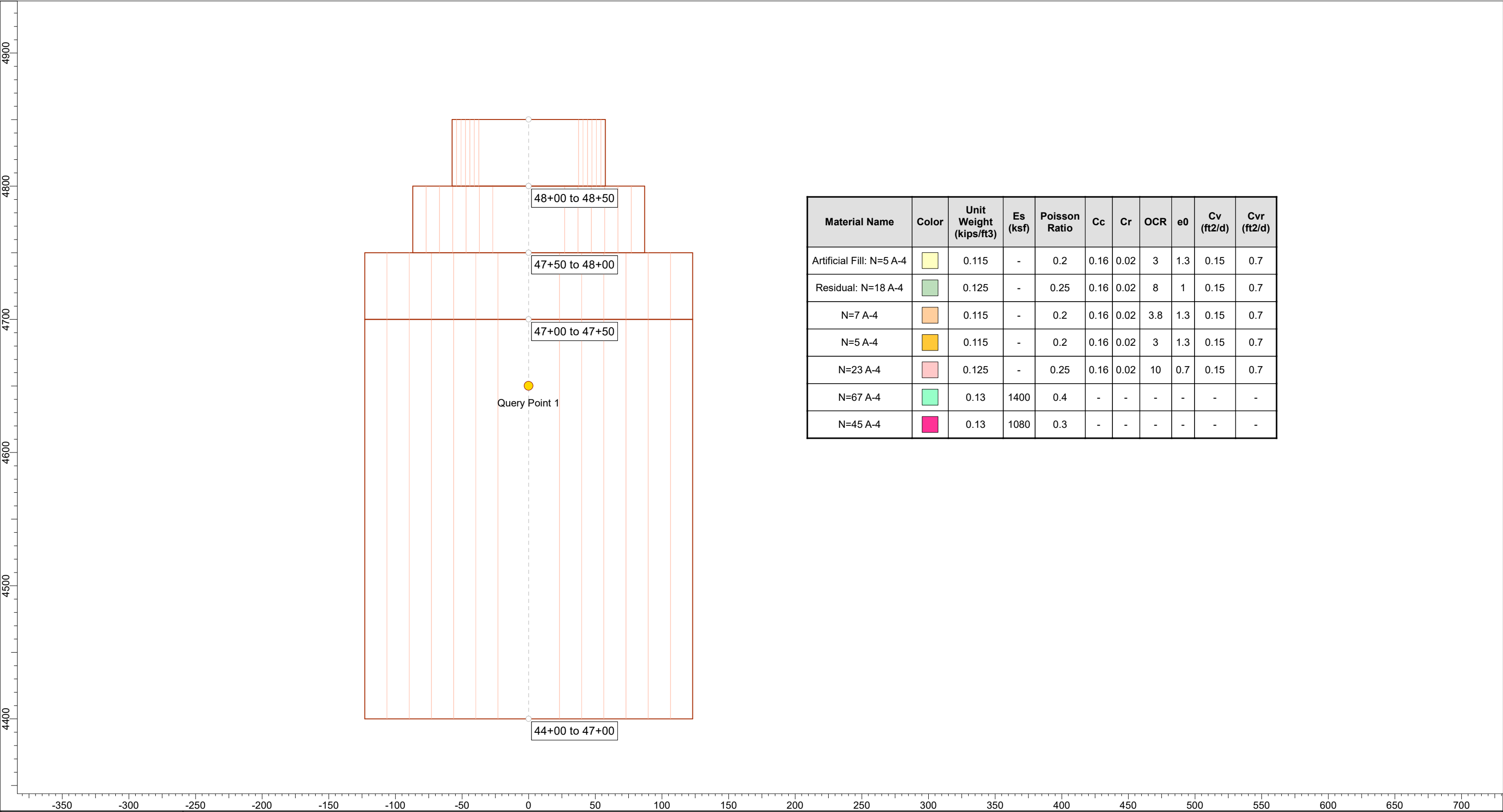
# 46+50, 3-month Construction Period: Time vs. Total Settlement



Reference Stage: None  
Total Settlement at Depth = 0 ft

SETTLE3.5.011

Project		CLT NEAT			
Analysis		Settlement		Description	
Drawn By	NRB	Project Number	1335-19-012	Company	S&ME
Location	—	File Name	4650 Settlement Estimate - 3 months.s3z	Date	8/31/2021
					Figure
					B



Material Name	Color	Unit Weight (kips/ft3)	Es (ksf)	Poisson Ratio	Cc	Cr	OCR	e0	Cv (ft2/d)	Cvr (ft2/d)
Artificial Fill: N=5 A-4		0.115	-	0.2	0.16	0.02	3	1.3	0.15	0.7
Residual: N=18 A-4		0.125	-	0.25	0.16	0.02	8	1	0.15	0.7
N=7 A-4		0.115	-	0.2	0.16	0.02	3.8	1.3	0.15	0.7
N=5 A-4		0.115	-	0.2	0.16	0.02	3	1.3	0.15	0.7
N=23 A-4		0.125	-	0.25	0.16	0.02	10	0.7	0.15	0.7
N=67 A-4		0.13	1400	0.4	-	-	-	-	-	-
N=45 A-4		0.13	1080	0.3	-	-	-	-	-	-