## TIEBACK STATION LOCATIONS

### NORTH A

<table>
<thead>
<tr>
<th>TIEBACK ID</th>
<th>STATION</th>
<th>INCREMENTS TO NEXT TIEBACK</th>
<th>TIEBACK ID</th>
<th>STATION</th>
<th>INCREMENTS TO NEXT TIEBACK</th>
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### SOUTH A'

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</tbody>
</table>

### TYPICAL TIEBACK INSTALLATION

1. The depth and thickness of the subsurface strata indicated on the shears and drilled in the actual conditions may vary from these indicated.

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**Notes:**
- Structural steel channels, angles, and plates: ASTM A36.
- Structural tee flanges: ASTM A572.
- Structural angles: ASTM A36.
- Steel bolts, nuts, and washers: ASTM A325 bolts, ASTM A563 nuts, black, unpainted.

**Materials:**
- All tieback bars for anchorage:
  - ASTM A615 Grade 60.
- All grout for anchors:
  - ASTM C360.

**Concrete anchors:**
- High-strength concrete, conformed to ASTM C361-98.

**Injection:**
- Two-component structural epoxy, comply with ASTM C881.

**Specifications for Tiebacks**
- Tiebacks designed with high-strength non-shrink grout for the full length of the members.
- Next station bracket with Type IV concrete, conforming to ASTM C-150, minimum compressive strength of 3000 psi.
- Pre-stressed steel for tie-backs consists of one 1 3/8" diameter cable strands.
- Grout mix, conforming to ASTM C117, including supplementary requirements 5-12, moisture, concreting practices.

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**Elevation 11+38 to 11+50**

**Elevation 17+25 to 0+00**
ELEVATIONS STA 13+10 TO 15+75

SEE NOTE ON S-13
NOTES:

COORDINATION:

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND LOCATIONS OF EXISTING AND APPROPRIATE HIGHWAYS AND OTHER EXISTING AND APPROPRIATE STRUCTURES WITH THE VERTICAL SPECIFICATIONS FOR STRUCTURAL STEEL WORK.

MATERIALS:

STRUCTURAL STEEL, CHANNELS, ANGLES, AND PLATES: ASTM A36.

STRUCTURAL TUBING: ASTM A500 Grade B.

BOLTS, NUTS, AND WASHERS: ASTM A325 BOLTS, ASTM A325 NUTS, BLACK, UNPANTED.

MELTING MATERIALS: INVESTIGATE ANY MATERIALS USED TO BE WELDED.

FABRICATION:

SHADOW DRAWINGS SHALL BE IN ACCORDANCE WITH INDUSTRY STANDARDS, INCLUDING ALL FABRICATION DRAWINGS.

BOLT JOINTS SHALL BE WELDED, CONTINUOUSLY SEAL JOINTS BY CONTINUOUS WELDS, ORIGIN EXPOSED WELDS SMOOTH.

FABRICATION CONNECTIONS FOR BOLT, NUT, AND WASHER CONNECTIONS UNLESS NOTED OTHERWISE.

SHADOW HOLES AND HATCHES IN MEMBERS WILL NOT BE PERMITTED, EXCEPT WHEN APPROVED IN WRITING BY THE ENGINEER.

THE CONTACT SURFACES OF JOINTS SHALL BE FREE OF OIL, PAINT, OR ANY FOREIGN MATTER.

FINISH:

1/16 IN. FLODDRAWN, RAILS, PLATES, AND ASSOCIATED STEEL: HOT-DIP GALVANIZING STEEL, AFTER FABRICATION TO ASTM A666, 12342 COATS OF SOLID GALVANIZING COMPOUND TO ALL FIELD MELDS AND DAMAGED AREAS.

PLATES, RAILS, CHANNELS, ANGLES, AND BEAM NOT PART OF 0-1-1 FLODDRAWN SHALL RECEIVE TWO COATS OF PRIMER PER SPECIFICATION 0-1-13.

ALLOW FOR EJECTION LOADS AND FOR TEMPORARY BRIDGING TO MAINTAIN STRUCTURE SAFE, PLUMB, AND IN TRUE ALIGNMENT UNTIL COMPLETION OF ERECTION AND INSTALLATION OF PERMANENT BRIDGES.

BEYOND THE LENGTH OF THE WROUGHT STEEL, MEMBERS, REMOVE EJECTION PAINT WITH A CHEMICAL PAINT REMOVER.

ABRASIVE GRINDING OR WIRE BRUSHING IS NOT PERMITTED, REMOVE PAINT A MINIMUM OF 4 IN. AWAY FROM ALL PROPOSED MELDS WITH FEEL-PHANT SMART CHIP BY PARK REGOAL, LLC, OR AS APPROVED BY THE ENGINEER.

FIELD-WELD COMPONENTS AS INDICATED ON DRAWINGS OR SHADOW DRAWINGS.

FIELD-FILL CONNECTIONS WITH THICKNESS FASTENED, TOUGH TO RESISTIVE, CONNECTIONS SHALL DEVELOP FULL STRENGTH OF MEMBERS, UNLESS NOTED OTHERWISE.

DO NOT FIELD-FILL OR ALTER STRUCTURAL MEMBERS WITHOUT APPROVAL BY THE ENGINEER.

SPECIFICATIONS FOR FLUSH-RAILS, BAILWAY:

MATERIALS: FLODDRAWN, MELTED.

EXPOSED MECHANICAL FASTENERS: FLUSH COUNTERSUNK SCREWS OR BOLTS, CONFORM TO DESIGNS OF STEEL STRUCTURES.

GRAFTING: WELDED STEEL BAR GRAFTING, ASTM A36 WITH NON-FLUSH INSERTS ON STAIN TREAT.

THICKNESS: 1/4 IN.

BEARING: 17/32 IN. THICKNESS: 1/4 IN. CENTER.

MATERIALS: BRACING:

POSTS: STEEL PIPE 15 IN. DIAMETER, SCHEDULE 40, SINGLE UNPLACED LENGTH 8-1/4 FT ON CENTER MAXIMUM.

RAILS: STEEL PIPE 15 IN. DIAMETER, SCHEDULE 40,

TOP RAIL: CONTINUOUSLY WELDED, PERMITTED, ATTACHED TO A MINIMUM OF THREE POSTS.

LOWER RAIL: SHALL BE CONNECTED TO TOP RAIL AND THE PLATE, EXPANSION JOINTS SHALL BE PLACED AT MAXIMUM 25-FT INTERVALS.

WELD, GRIND, AND GRIND SMOOTH ALL CONNECTIONS.

FABRICATION - GENERAL:

FIT AND FILL - ADDITIONAL COMPONENTS TO THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO THE SITE.

FABRICATION COMPONENTS WITH JOINTS TIGHTLY FITTED AND SECURED.

CONSTRUCTUALLY REALED JOINTS BY CONTINUOUS WELDS.

GRIND EXPOSED JOINTS FLUSH AND SMOOTH WITH ADJACENT FLUSH SURFACE, MAKE EXPOSED JOINTS BUTT-TIGHT, FLUSH, AND HARMLESS. CASE EXPOSED EDGES TO SMALL UNIFORM RAPID.

EXPOSED MECHANICAL FASTENERS: FLUSH COUNTERSUNK SCREWS OR BOLTS, UNIDENTIFIED LOADED, CONFORM TO DESIGN OF COMPONENTS, UNLESS NOTED OTHERWISE.

SHADOW COMPONENTS REQUIRING FOR FASTENING OF COMPONENTS, FASTENERS, AND FASTENERS OF SAME MATERIAL, UNLESS NOTED OTHERWISE.

ADDITIONAL COMPONENTS OF STRUCTURAL COMPONENTS FOR INSTALLATION OF COMPONENTS TO THE BUILDING STRUCTURE.

PROVIDE ANCHORS, BRACKETS, AND BOLTS REQUIRED FOR MOUNTING AND FASTENING.

FIELD-FILL COMPONENTS SHOWN IN FIELD AS BOLTED TO BOTTOM AND CENTER POINTS OF MEMBERS AT LOCATIONS THAT WILL NOT ACCUMULATE WATER.

MAKE EXPOSED JOINTS BUTT-TIGHT, FLUSH, AND HARMLESS. CASE EXPOSED EDGES TO SMALL, UNIFORM RAPID.

ADDITIONAL COMPONENTS FOR STAIN WADERS AND LANDING TO EACH OTHER AND TO STRUCTURE.

ACCOUCMPNENTS FOR EXPANSION AND CONTRACTION OF MEMBERS AND STRUCTURES IN VARIOUS ACCOMODATE WITHOUT DAMAGE TO CONNECTORS OR MEMBERS.

FINISHES:

HOT-DIP GALVANIZING: ALL STEEL, REMAIN IN CONTACT WITH THE 0-1-1 FLODDRAWN AFTER FABRICATION TO ASTM A666, 12342 COATS OF SOLID GALVANIZING COMPOUND TO ALL FIELD MELDS AND DAMAGED AREAS.

SEE SPECIFICATION 0-1-13 FOR PRIME-PAINTRUST STRUCTURES NOT IN CONTACT WITH THE 0-1 FLODDRAWN.

SPECIFICATIONS FOR WALKWAY LADDER AND SAFETY GATE:

WALKWAY LADDER AND SAFETY GATE:

AND SHIELDING SAFETY GATE IN ACCORDANCE WITH FDA, FOR 100-1/12 AND 100-1/127 CONTRACTORS SHALL SUBMIT FABRICATION DRAWINGS OR MANUFACTURER INFORMATION PENDING FDA CERASIA MCF.

GATE SPONGS: TWO STAINLESS STEEL TORSION SPRINGS.

GATE WIDTH: 2'-12".

GATE FINS: POURED COATED STEEL OR DIPGED GALVANIZED.

GATE MANUFACTURER: A-MIZE INDUSTRIALS, INC. MODEL MD-24, OR AS APPROVED BY ENGINEER.

LADDER HEIGHT: FROM GRATING AT ELEV 10.33 TO WALL AT ELEV 5.0.

LADDER SIDE MOUNT, STEEL ANGLE DOIL.

LADDER RANGE: NEWLY COATED STEEL, MEANS, SPACED 17'-1/2" MAXIMUM.

LADDER POURED-MOUNT, COATED STEEL ON NOT GALVANIZED.

LADDER MANUFACTURER: A-MIZE INDUSTRIAL STRUCTURES, INC.

NOT TO SCALE
**Plan Scale:** 1" = 30'

**Typical Inclinometer Installation**

**Terra Solutions, Inc. - Lorain Passaic River, Newark, NJ**

**Phase I - Ceresa Non-Time-Critical Removal Action**

**Structure Monitoring Plan and Details**

<table>
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<th>Wall</th>
<th>Placement</th>
<th>Installation Details</th>
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<tr>
<td>GRO-1 (Coined Curved Wall)</td>
<td>STA: 11+48, 11+32, 11+26, 11+22</td>
<td>EXTRATION WELL VAULTS</td>
<td>ONE LOCATION AT EACH WELL VAULT</td>
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<tr>
<td>GRO-1 (Massey Wall)</td>
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<td>EXISTING WALL</td>
<td>ONE LOCATION SOUTH END OF WALL</td>
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<tr>
<td>GRO-1 (Sherwin-Williams)</td>
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<td>EXISTING WALL</td>
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<tr>
<td><strong>Optical Survey Points</strong></td>
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<tr>
<td>GRO-1 (Coined Curved Wall)</td>
<td>STA: 11+12, 11+26, 11+32, 11+40, 11+42</td>
<td>EXISTING WALL</td>
<td>TO BE INSTALLED ON TOP OF THE EXISTING WALLS AS WELL AS THE GRO-1 (Coined Curved Wall)</td>
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<tr>
<td>GRO-1 (Massey Wall)</td>
<td></td>
<td>EXISTING WALL</td>
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<tr>
<td>GRO-1 (Sherwin-Williams)</td>
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<td>EXISTING WALL</td>
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<tr>
<td><strong>Load Cells</strong></td>
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<tr>
<td>T-2</td>
<td>STA: 11+78.89</td>
<td>LOAD CELL</td>
<td>LOAD CELLS SHALL BE INSTALLED AT THE TIME OF TRENCH INSTALLATION. THE TRENCH INSTALLATION SUBCONTRACTOR SHALL INSTALL THE LOAD CELLS AHEAD OF EACH TRENCH INSTALLATION TO BE SPECIFIED. FOR ADDITIONAL INFORMATION, SEE DETAIL 35-10.</td>
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**Inclinometers**

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<tr>
<td>GRO-1</td>
<td>WEST ENCLOSURE</td>
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<td>INCLINO METER TUBE CASING SHALL BE AS SPECIFIED IN DETAIL 13-30 AND INSTALLATION AS SHOWN IN DETAIL 13 (RIGHT).</td>
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<td>EAST ENCLOSURE</td>
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<tr>
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<td>EAST ENCLOSURE</td>
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<tr>
<td>GRO-1</td>
<td>EXISTING WALL (Massey Wall)</td>
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**Additional Notes**

- All dimensions are approximate.
- For further details, please refer to the main plan and associated details.
- The inclinometer tubes shall be installed as specified in details 13-30 and installation as shown in detail 13 (right).
- The load cells shall be installed at the time of trench installation. The trench installation subcontractor shall install the load cells at the head of each trench before trenching.
- Additional information can be found in detail 35-10.