

California High-Speed Rail Authority



RFP No.: HSR 13-57

**Request for Proposals for Design-Build
Services for Construction Package 2-3**

**Book I, Part C.4 - Design-Build Services
Scope of Work**

**ATTACHMENT 3
SCOPING TYPICAL SECTIONS**

04/02/2014 - RFP No.: HSR13-57

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WORK ELEMENTS (IN CONTRACT)

- ① PREPARED SUBGRADE
- ② PROTECTIVE LAYER (SEE NOTE 2)
- ③ FINISHED GRADE
- ④ FENCE AND FOUNDATION / INTRUSION BARRIER (SEE NOTE 3 & 4)
- ⑤ LOW VOLTAGE UNDER TRACK AND UNDER GROUND CONDUITS IN DUCTBANK AND MANHOLES
- ⑥ DRAINAGE DITCH
- ⑦ UTILITY CROSSINGS
- ⑧ TEMPORARY SURFACE DRAINAGE
- ⑨ 25KV UNDER GROUND CONDUITS IN DUCTBANK AND MANHOLES

WORK ELEMENTS (NOT IN CONTRACT)

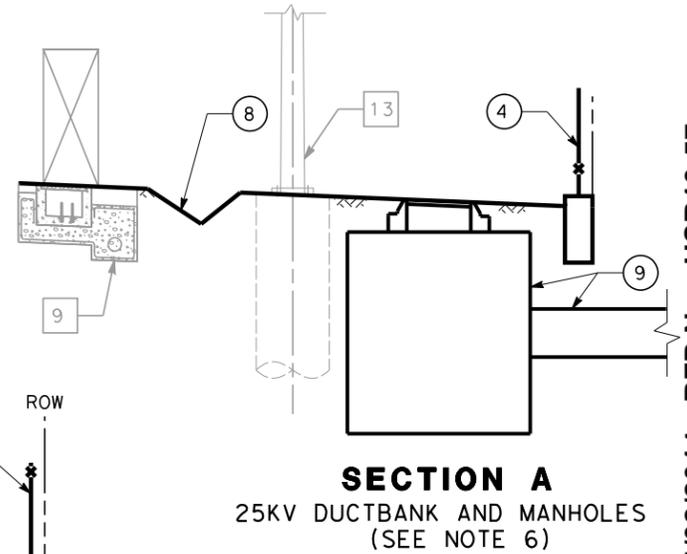
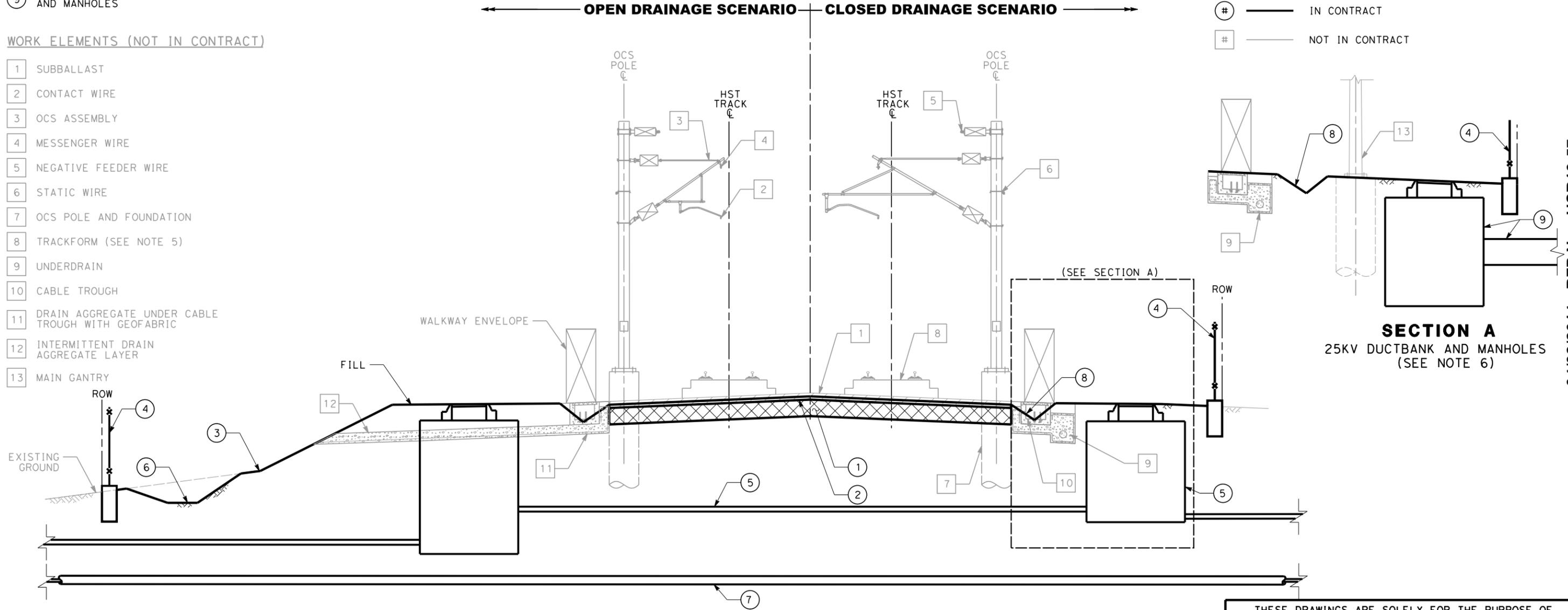
- 1 SUBBALLAST
- 2 CONTACT WIRE
- 3 OCS ASSEMBLY
- 4 MESSENGER WIRE
- 5 NEGATIVE FEEDER WIRE
- 6 STATIC WIRE
- 7 OCS POLE AND FOUNDATION
- 8 TRACKFORM (SEE NOTE 5)
- 9 UNDERDRAIN
- 10 CABLE TROUGH
- 11 DRAIN AGGREGATE UNDER CABLE TROUGH WITH GEOFABRIC
- 12 INTERMITTENT DRAIN AGGREGATE LAYER
- 13 MAIN GANTRY

NOTES:

- 1. SEE DESIGN CRITERIA MANUAL, DIRECTIVE DRAWINGS, AND STANDARD DRAWINGS FOR REQUIREMENTS AND DIMENSIONS.
- 2. PROTECTIVE LAYER TO PROTECT PREPARED SUBGRADE.
- 3. INTRUSION BARRIER (AS REQUIRED) ADJACENT TO ROADWAYS AND RAILWAY.
- 4. FENCE GROUNDING SHALL BE PROVIDED.
- 5. NON-BALLASTED TRACKFORM SHOWN FOR ILLUSTRATION PURPOSES ONLY. SEE SCOPE OF WORK.
- 6. SEE SCOPE OF WORK - SCOPE ELEMENTS MATRIX FOR PRELIMINARY LOCATIONS AND DETAILS FOR 25KV UNDERGROUND CONDUITS IN DUCTBANK AND MANHOLES.

LEGEND:

- ① ——— IN CONTRACT
- ② ——— NOT IN CONTRACT



DATE: 12/18/2013

TYPICAL AT-GRADE SECTION

THESE DRAWINGS ARE SOLELY FOR THE PURPOSE OF SCOPED WORK ELEMENTS AND ARE NOT INTENDED AS A DESIGN DIRECTIVE. TRACK, SYSTEMS, AND DRAINAGE ARE SCHEMATIC AND DO NOT REPRESENT DESIGN. ACCORDINGLY THE INFORMATION CONTAINED HEREIN SHALL NOT BE USED FOR DESIGN AND/OR CONSTRUCTION PURPOSES. OTHERWISE, REFER TO SCOPE OF WORK AND TECHNICAL DIRECTIVES.

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WORK ELEMENTS (IN CONTRACT)

- ① PREPARED SUBGRADE
- ② PROTECTIVE LAYER (SEE NOTE 3)
- ③ FINISHED GRADE
- ④ FENCE AND FOUNDATION / INTRUSION BARRIER (SEE NOTE 4 & 5)
- ⑤ FALL PROTECTION
- ⑥ GUTTER
- ⑦ UNDER TRACK CONDUITS IN DUCTBANK AND MANHOLES
- ⑧ DRAINAGE DITCH
- ⑨ CONTINUOUS DRAINAGE BLANKET
- ⑩ RETAINING STRUCTURE
- ⑪ WEEP HOLE
- ⑫ RETAINING WALL PERFORATED PIPE UNDERDRAIN
- ⑬ UTILITY CROSSINGS
- ⑭ TEMPORARY SURFACE DRAINAGE

WORK ELEMENTS (NOT IN CONTRACT)

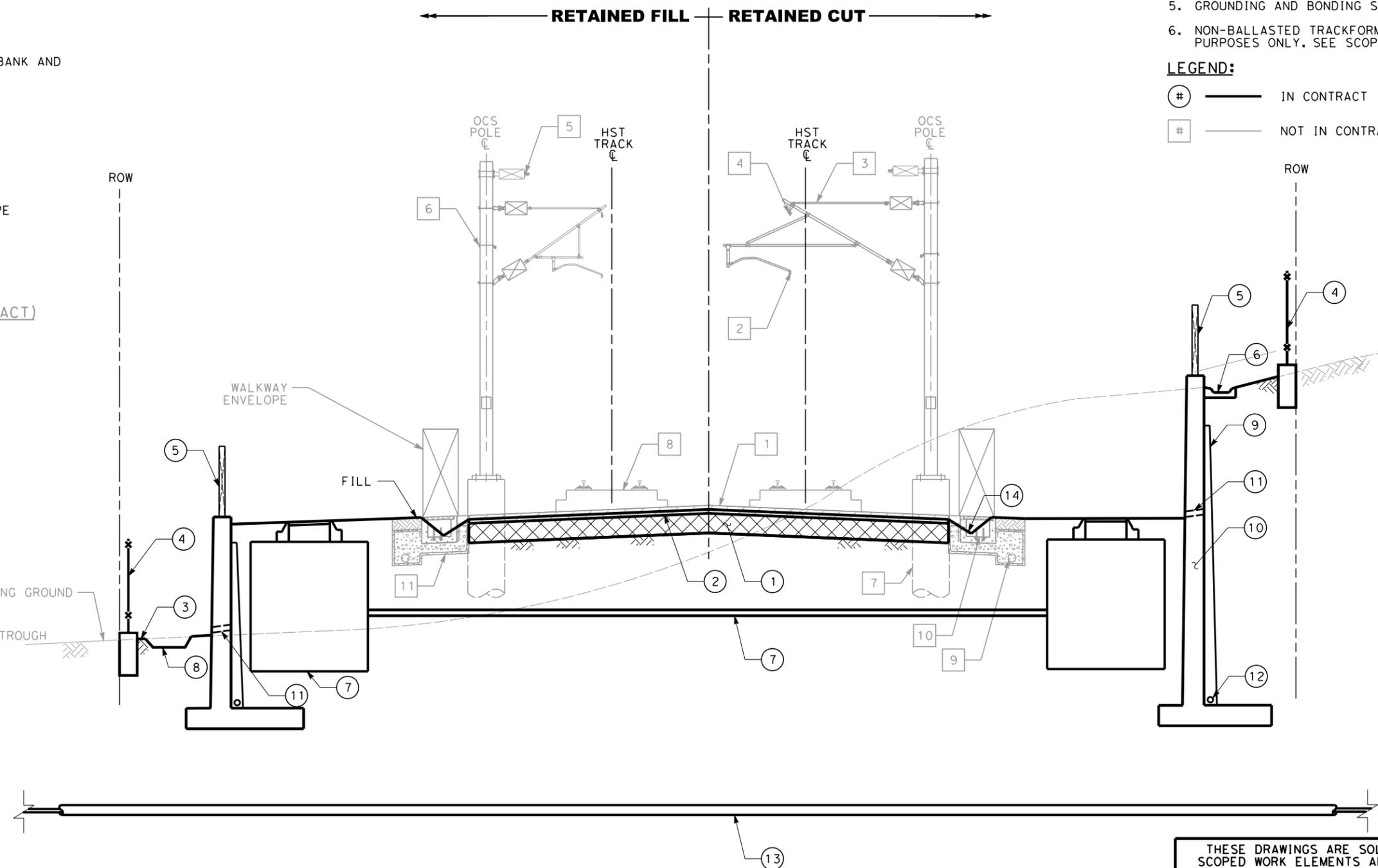
- 1 SUBBALLAST
- 2 CONTACT WIRE
- 3 OCS ASSEMBLY
- 4 MESSENGER WIRE
- 5 NEGATIVE FEEDER WIRE
- 6 STATIC WIRE
- 7 OCS POLE AND FOUNDATION
- 8 TRACKFORM (SEE NOTE 6)
- 9 UNDERDRAIN (SEE NOTE 2)
- 10 CABLE TROUGH
- 11 DRAIN AGGREGATE UNDER CABLE TROUGH WITH GEOFABRIC.

NOTES:

- 1. SEE DESIGN CRITERIA MANUAL, DIRECTIVE DRAWINGS, AND STANDARD DRAWINGS FOR REQUIREMENTS AND DIMENSIONS.
- 2. TEMPORARY DRAINAGE SHALL BE PROVIDED.
- 3. PROTECTIVE LAYER TO PROTECT PREPARED SUBGRADE.
- 4. INTRUSION BARRIER (AS REQUIRED) ADJACENT TO ROADWAYS AND RAILWAY.
- 5. GROUNDING AND BONDING SHALL BE PROVIDED.
- 6. NON-BALLASTED TRACKFORM SHOWN FOR ILLUSTRATION PURPOSES ONLY. SEE SCOPE OF WORK.

LEGEND:

- ① ——— IN CONTRACT
- ② ——— NOT IN CONTRACT



TYPICAL RETAINED CUT AND FILL SECTION

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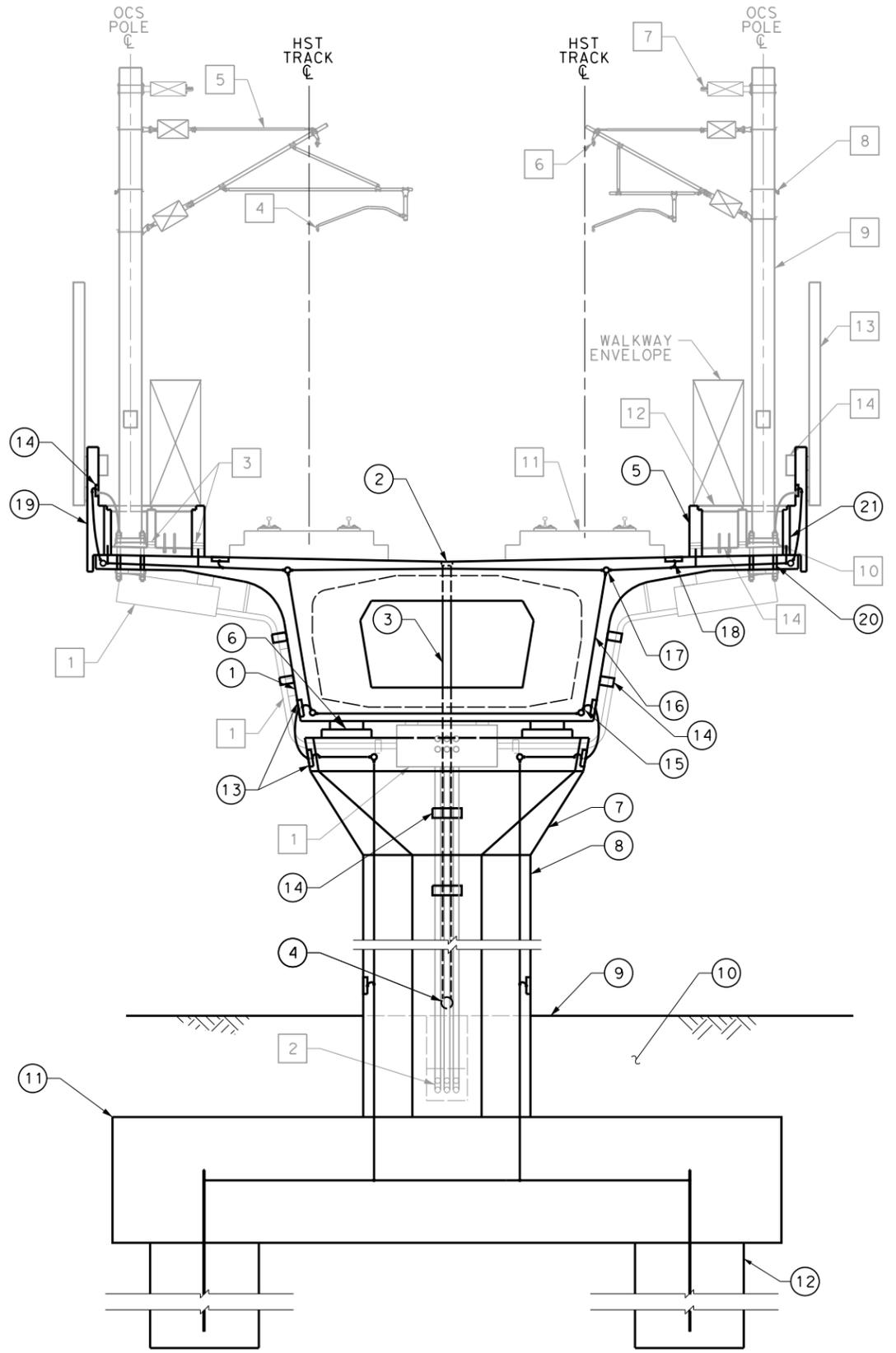
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WORK ELEMENTS (IN CONTRACT)

- ① BOX GIRDER
- ② DRAIN AND INLET
- ③ DOWNSPOUT
- ④ DOWNSPOUT CONNECTION TO STORM DRAIN
- ⑤ TRACKSIDE CABLE TROUGH WALL
- ⑥ BEARINGS, RESTRAINER, TIE-DOWN DEVICE
- ⑦ COLUMN CAP
- ⑧ COLUMN
- ⑨ FINISHED GRADE
- ⑩ COMPACTED BACKFILL / STRUCTURAL FILL
- ⑪ FOOTING/PILE CAP
- ⑫ PILE/DRILLED SHAFT
- ⑬ THICK COPPER GROUNDING PLATE (SEE NOTE 4)
- ⑭ EMBEDMENTS FOR CONDUIT RISERS
- ⑮ EXOTHERMIC WELD (SEE NOTE 4)
- ⑯ CONNECTING BONDING REBAR (SEE NOTE 4)
- ⑰ LONGITUDINAL BONDING REBAR (SEE NOTE 4)
- ⑱ GROUND JUMPER CONDUCTOR (SEE NOTE 4)
- ⑲ CONCRETE PARAPET
- ⑳ SLEEVES FOR OCS POLE FOUNDATION
- ㉑ CABLE TROUGH WALL

WORK ELEMENTS (NOT IN CONTRACT)

- ① EXPOSED CONDUITS, SURFACE MOUNTED PULL BOXES, AND MOUNTING HARDWARE
- ② CONDUITS CONTINUED TO SITE LIMITS OF JOB SITE AND/OR ADJACENT CORE SYSTEMS TRACKSIDE FACILITY (SEE NOTE 3)
- ③ SLEEVES FOR DRAINAGE OR CONDUITS
- ④ CONTACT WIRE
- ⑤ OCS ASSEMBLY
- ⑥ MESSENGER WIRE
- ⑦ NEGATIVE FEEDER WIRE
- ⑧ STATIC WIRE
- ⑨ OCS POLE
- ⑩ OCS POLE FOUNDATION
- ⑪ TRACKFORM (SEE NOTE 6)
- ⑫ PRECAST COVERS
- ⑬ SOUND WALL (AS REQUIRED)
- ⑭ CABLE TROUGH (TYP)



TYPICAL AERIAL STRUCTURE SECTION

NOTES:

1. SEE DESIGN CRITERIA MANUAL, DIRECTIVE DRAWINGS, AND STANDARD DRAWINGS FOR REQUIREMENTS AND DIMENSIONS.
2. DOWELS FOR FUTURE CABLE THROUGH SHALL PROVIDE THE CONTINUITY FOR THE GROUNDING SYSTEM.
3. WHERE THE CORE SYSTEMS TRACKSIDE FACILITY IS WITHIN THE AUTHORITY ROW, THE CIVIL CONTRACTOR SHALL EXTEND THE UNDERGROUND DUCT BANK TO THE FACILITY'S SITE LIMITS. IN THE CASE WHERE THE FACILITIES ARE LOCATED A DISTANCE FROM THE AUTHORITY ROW, THE CIVIL CONTRACTOR SHALL EXTEND TO THE UNDERGROUND DUCT BANK TO THE JOB SITE LIMITS.
4. GROUNDING AND BONDING SHALL BE PROVIDED.
5. FENCE SHALL BE PROVIDED ALONG THE AUTHORITY ROW (NOT SHOWN).
6. NON-BALLASTED TRACKFORM SHOWN FOR ILLUSTRATION PURPOSES ONLY. SEE SCOPE OF WORK.

LEGEND:

- ① ——— IN CONTRACT
- ② ——— NOT IN CONTRACT

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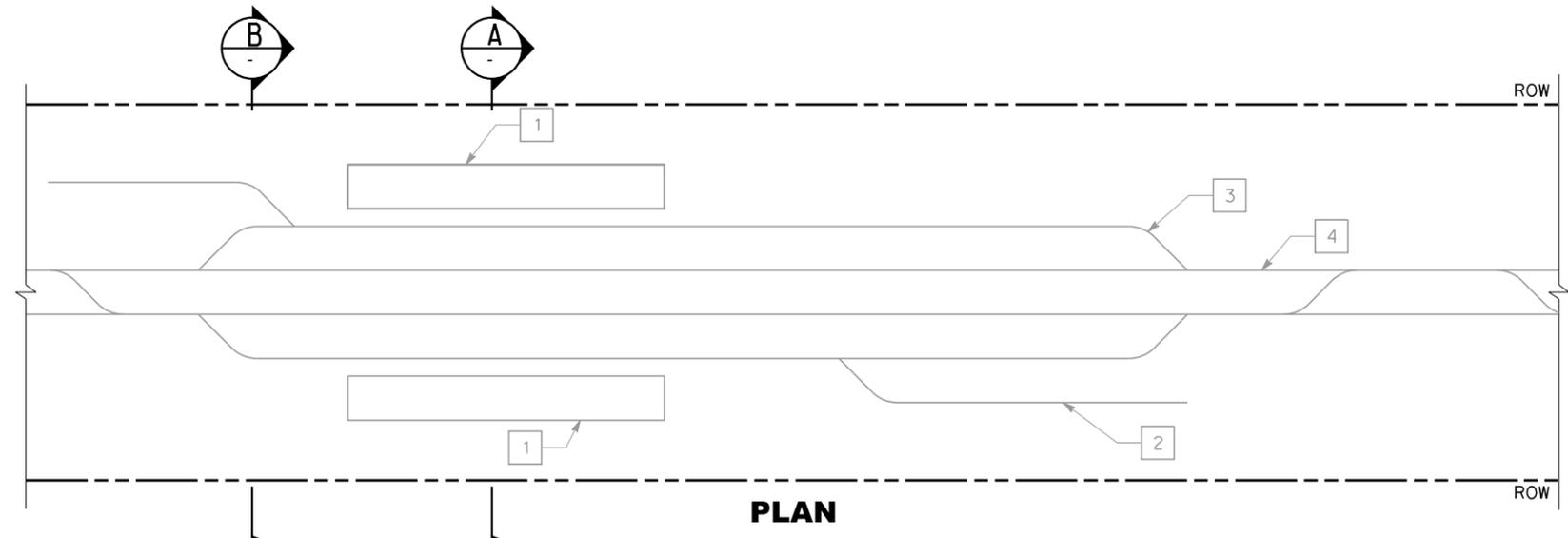
WORK ELEMENTS (IN CONTRACT)

- ① BOX GIRDER
- ② DRAIN AND INLET
- ③ DOWNSPOUT
- ④ DOWNSPOUT CONNECTION TO STORM DRAIN
- ⑤ TRACKSIDE CABLE TROUGH WALL
- ⑥ CABLE TROUGH WALL
- ⑦ SLEEVES FOR OCS POLE FOUNDATION AND EMBEDDED COUPLERS FOR WIND SCREENS
- ⑧ COLUMN
- ⑨ FINISHED GRADE
- ⑩ COMPACTED BACKFILL / STRUCTURAL FILL
- ⑪ FOOTING/PILE CAP
- ⑫ PILE/DRILLED SHAFT
- ⑬ THICK COPPER GROUNDING PLATE (SEE NOTE 4)
- ⑭ EMBEDMENTS FOR CONDUIT RISERS
- ⑮ EXOTHERMIC WELD (SEE NOTE 4)
- ⑯ CONNECTING BONDING REBAR (SEE NOTE 4)
- ⑰ LONGITUDINAL BONDING REBAR (SEE NOTE 4)
- ⑱ GROUND JUMPER CONDUCTOR (SEE NOTE 4)

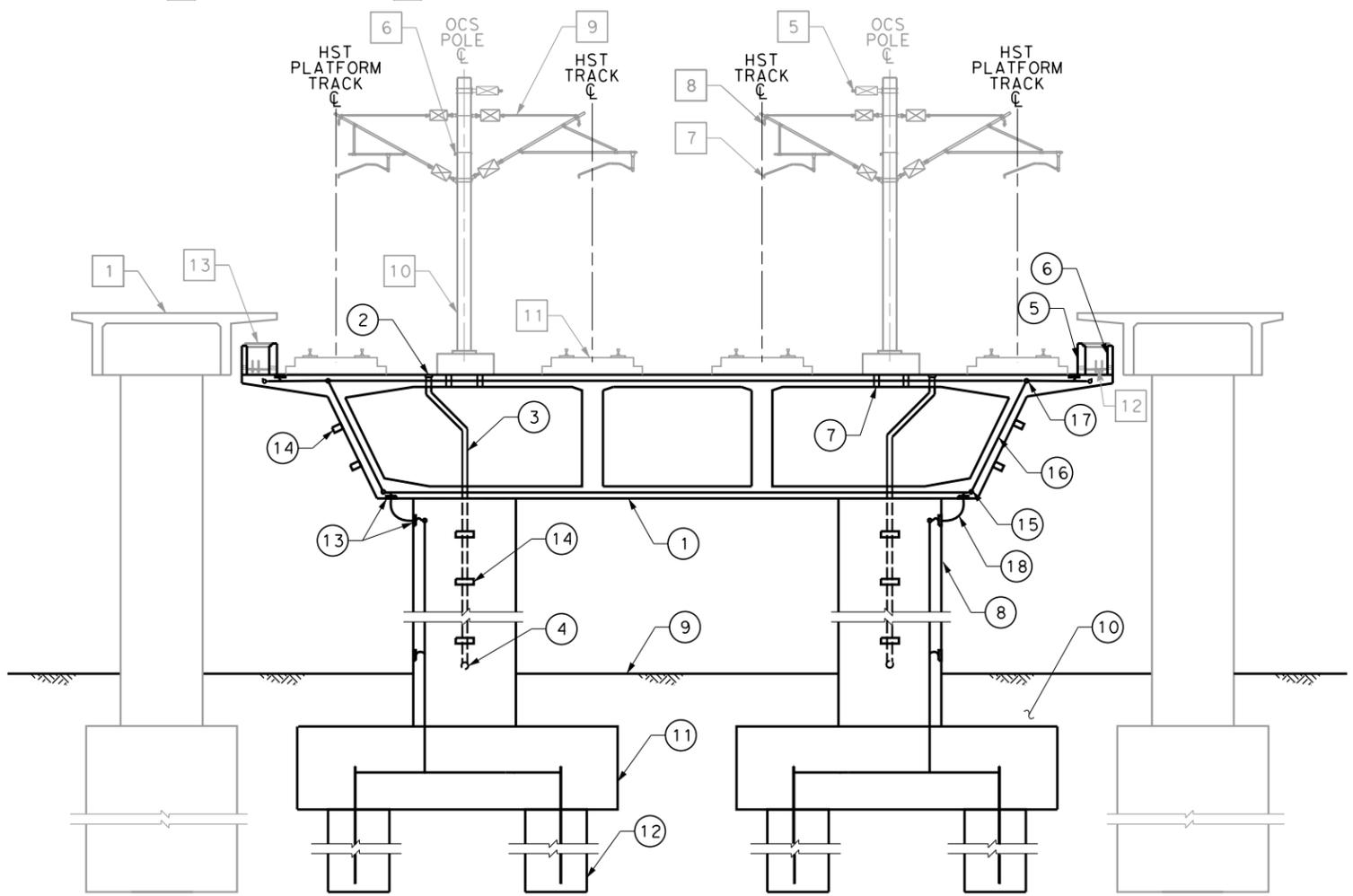
WORK ELEMENTS (NOT IN CONTRACT)

- ① STATION PLATFORM
- ② REFUGE/STORAGE TRACK (TYP)
- ③ PLATFORM TRACK (TYP)
- ④ MAIN TRACK (TYP)
- ⑤ NEGATIVE FEEDER WIRE
- ⑥ STATIC WIRE
- ⑦ CONTACT WIRE
- ⑧ MESSENGER WIRE
- ⑨ OCS ASSEMBLY
- ⑩ OCS POLE AND FOUNDATION
- ⑪ TRACKFORM
- ⑫ CABLE TROUGH (TYP)
- ⑬ PRECAST COVERS

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PLAN



SECTION A-A
NO SCALE

NOTES:

1. SEE DESIGN CRITERIA MANUAL, DIRECTIVE DRAWINGS, AND STANDARD DRAWINGS FOR REQUIREMENTS AND DIMENSIONS.
2. DOWELS FOR FUTURE CABLE THROUGH SHALL PROVIDE THE CONTINUITY FOR THE GROUNDING SYSTEM.
3. WHERE THE CORE SYSTEMS TRACKSIDE FACILITY IS WITHIN THE AUTHORITY ROW, THE CIVIL CONTRACTOR SHALL EXTEND THE UNDERGROUND DUCT BANK TO THE FACILITY'S SITE LIMITS. IN THE CASE WHERE THE FACILITIES ARE LOCATED A DISTANCE FROM THE AUTHORITY ROW, THE CIVIL CONTRACTOR SHALL EXTEND TO THE UNDERGROUND DUCT BANK TO THE JOB SITE LIMITS.
4. GROUNDING AND BONDING SHALL BE PROVIDED.
5. FENCE SHALL BE PROVIDED ALONG THE AUTHORITY ROW (NOT SHOWN).

LEGEND:

- ① ——— IN CONTRACT
- ② ——— NOT IN CONTRACT

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT
ATTACHMENT 3 - SCOPING TYPICAL SECTIONS**

AERIAL STRUCTURE
AT STATION PLATFORM
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WORK ELEMENTS (IN CONTRACT)

- 1 BOX GIRDER
- 2 DRAIN AND INLET
- 3 DOWNSPOUT
- 4 DOWNSPOUT CONNECTION TO STORM DRAIN
- 5 TRACKSIDE CABLE TROUGH WALL
- 6 CABLE TROUGH WALL
- 7 SLEEVES FOR OCS POLE FOUNDATION
- 8 COLUMN
- 9 FINISHED GRADE
- 10 COMPACTED BACKFILL / STRUCTURAL FILL
- 11 FOOTING/PILE CAP
- 12 PILE/DRILLED SHAFT
- 13 THICK COPPER GROUNDING PLATE (SEE NOTE 4)
- 14 EMBEDMENTS FOR CONDUIT RISERS
- 15 EXOTHERMIC WELD (SEE NOTE 4)
- 16 CONNECTING BONDING REBAR (SEE NOTE 4)
- 17 LONGITUDINAL BONDING REBAR (SEE NOTE 4)
- 18 GROUND JUMPER CONDUCTOR (SEE NOTE 4)
- 19 CONCRETE PARAPET

WORK ELEMENTS (NOT IN CONTRACT)

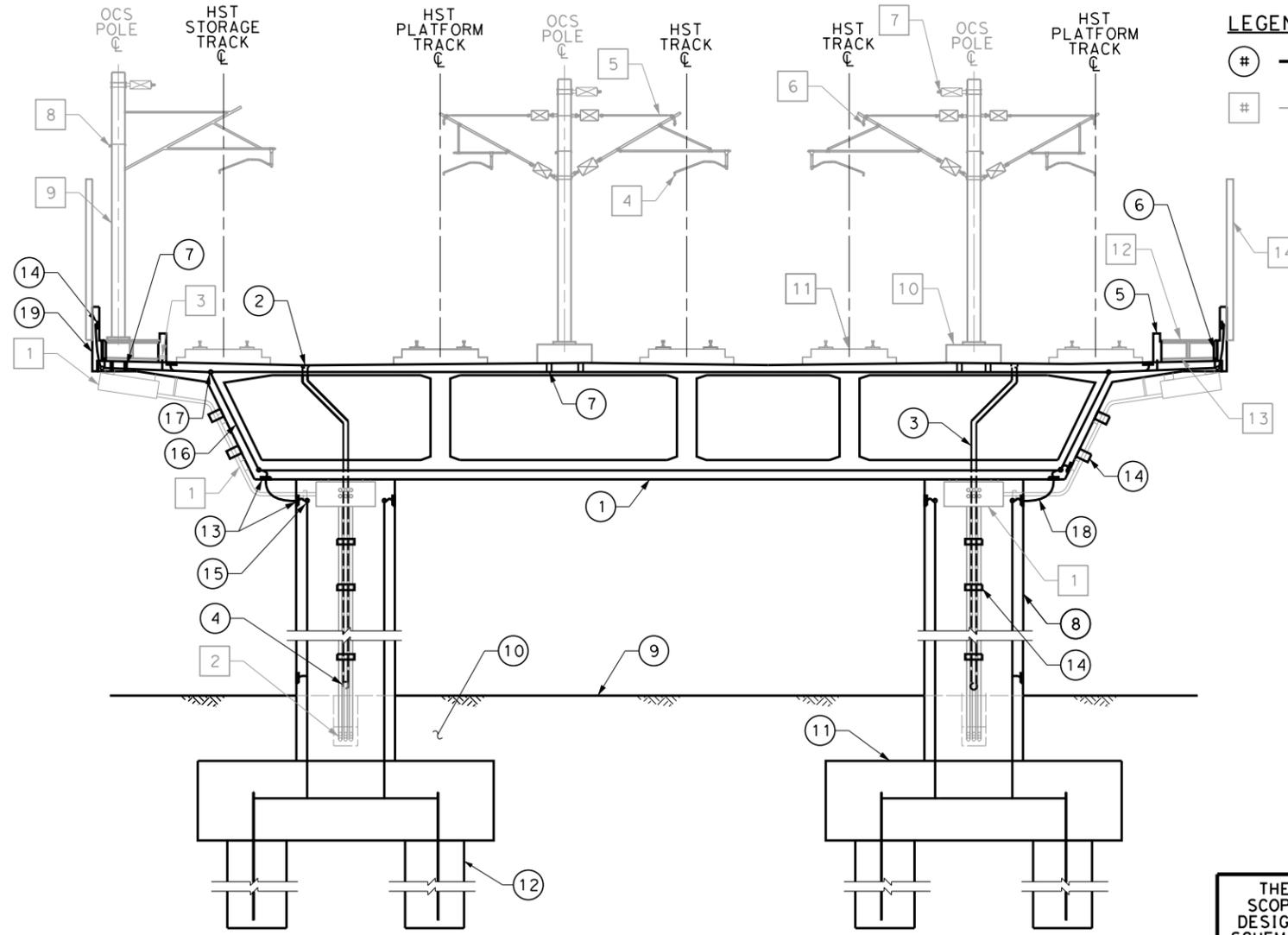
- 1 EXPOSED CONDUITS, SURFACE MOUNTED PULL BOXES, AND MOUNTING HARDWARE
- 2 CONDUITS CONTINUED TO SITE LIMITS OF JOB SITE AND/OR ADJACENT CORE SYSTEMS TRACKSIDE FACILITY (SEE NOTE 3)
- 3 SLEEVES FOR DRAINAGE OR CONDUITS
- 4 CONTACT WIRE
- 5 OCS ASSEMBLY
- 6 MESSENGER WIRE
- 7 NEGATIVE FEEDER WIRE
- 8 STATIC WIRE
- 9 OCS POLE
- 10 OCS POLE FOUNDATION
- 11 TRACKFORM
- 12 PRECAST COVERS
- 13 CABLE TROUGH (TYP)
- 14 SOUNDWALL (AS REQUIRED)

NOTES:

1. SEE DESIGN CRITERIA MANUAL, DIRECTIVE DRAWINGS, AND STANDARD DRAWINGS FOR REQUIREMENTS AND DIMENSIONS.
2. DOWELS FOR FUTURE CABLE THROUGH SHALL PROVIDE THE CONTINUITY FOR THE GROUNDING SYSTEM.
3. WHERE THE CORE SYSTEMS TRACKSIDE FACILITY IS WITHIN THE AUTHORITY ROW, THE CIVIL CONTRACTOR SHALL EXTEND THE UNDERGROUND DUCT BANK TO THE FACILITY'S SITE LIMITS. IN THE CASE WHERE THE FACILITIES ARE LOCATED A DISTANCE FROM THE AUTHORITY ROW, THE CIVIL CONTRACTOR SHALL EXTEND TO THE UNDERGROUND DUCT BANK TO THE JOB SITE LIMITS.
4. GROUNDING AND BONDING SHALL BE PROVIDED.
5. FENCE SHALL BE PROVIDED ALONG THE AUTHORITY ROW (NOT SHOWN).

LEGEND:

- # ——— IN CONTRACT
- # ——— NOT IN CONTRACT

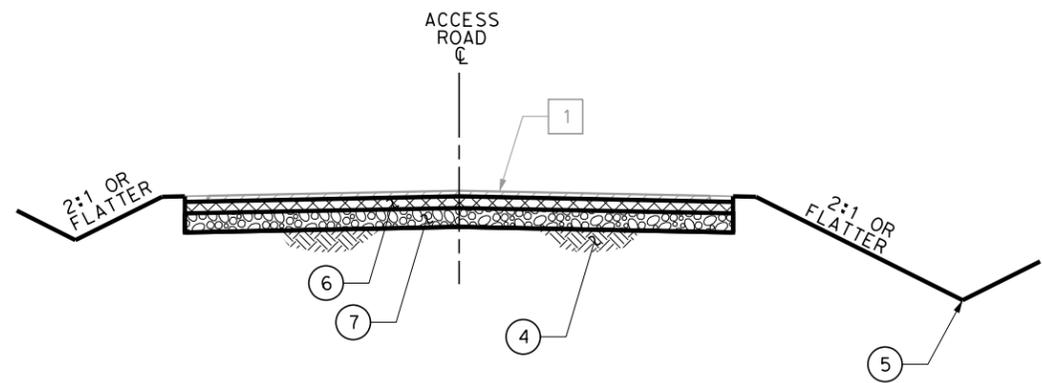
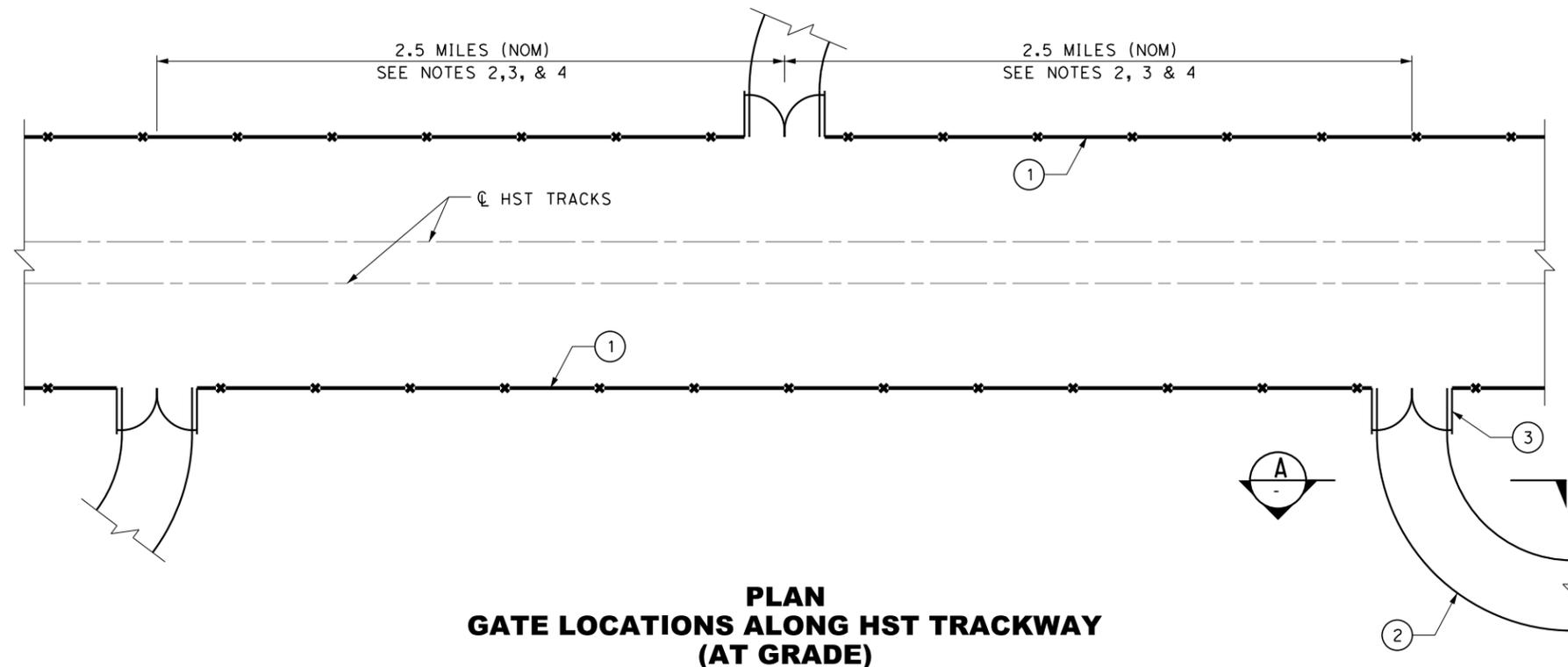


SECTION B
NO SCALE

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NOTES:

1. SEE DESIGN CRITERIA MANUAL, DIRECTIVE DRAWINGS, AND STANDARD DRAWINGS FOR REQUIREMENTS AND DIMENSIONS.
2. LOCATION OF GATES ALONG AUTHORITY ROW AND FENCING REQUIRES COORDINATION WITH THE LOCAL FIRE PROTECTION AGENCY AND EMERGENCY RESPONDERS.
3. GATES LOCATIONS SHALL BE COORDINATED WITH (I/E. PLACED ADJACENT TO OR NEAR) THE LOCATION OF HST WAYSIDE FACILITIES REQUIRING ACCESS FROM OUTSIDE AUTHORITY ROW.
4. IN GENERAL VEHICULAR ACCESS GATE ALONG AT-GRADE TRACKWAY, SHALL BE LOCATED NOMINALLY AT 2.5 MILE INTERVALS.
5. ACCESS ROADS TO BE GRADE AND GRAVEL ONLY LOCATED AT 2.5 MILE NOMINAL INTERVALS TO COINCIDE WITH VEHICULAR GATE ACCESS.

WORK ELEMENTS (IN CONTRACT)

- ① FENCE
- ② ACCESS ROAD
- ③ VEHICULAR ACCESS GATE
- ④ COMPACTED SUBGRADE OR UNDISTURBED EARTH (SEE NOTE 5)
- ⑤ DRAINAGE DITCH (TYP)
- ⑥ AGGREGATE BASE
- ⑦ AGGREGATE SUBBASE

WORK ELEMENTS (NOT IN CONTRACT)

- ① ASPHALT CONCRETE

LEGEND:

- ① ——— IN CONTRACT
- ② ——— NOT IN CONTRACT

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