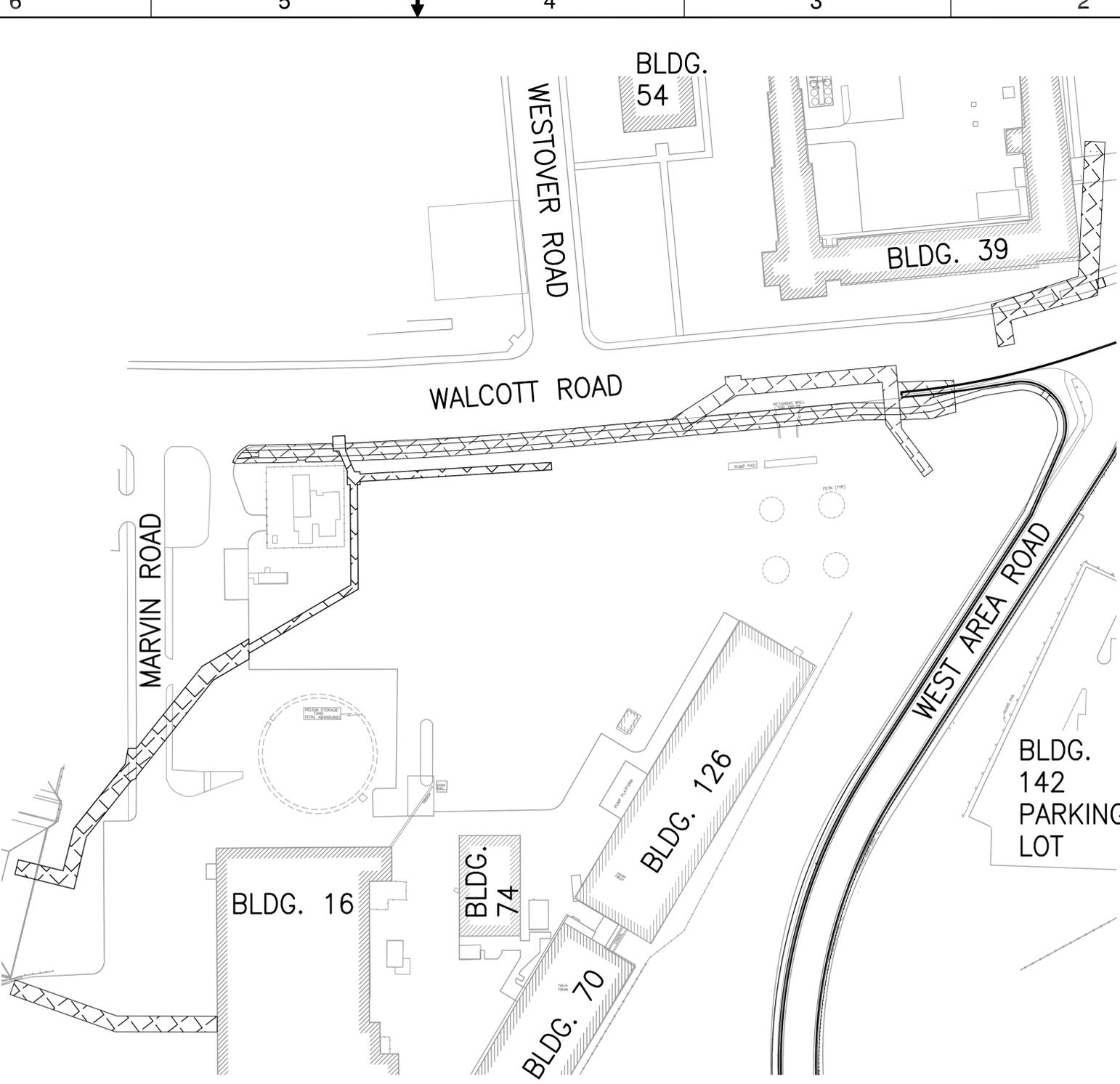
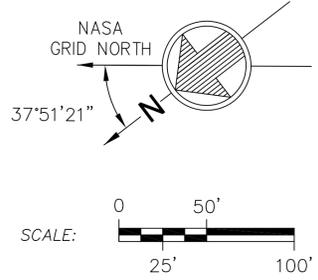


SOIL DETERMINATION SCHEMATIC PLAN



SOIL DETERMINATION SCHEMATIC PLAN

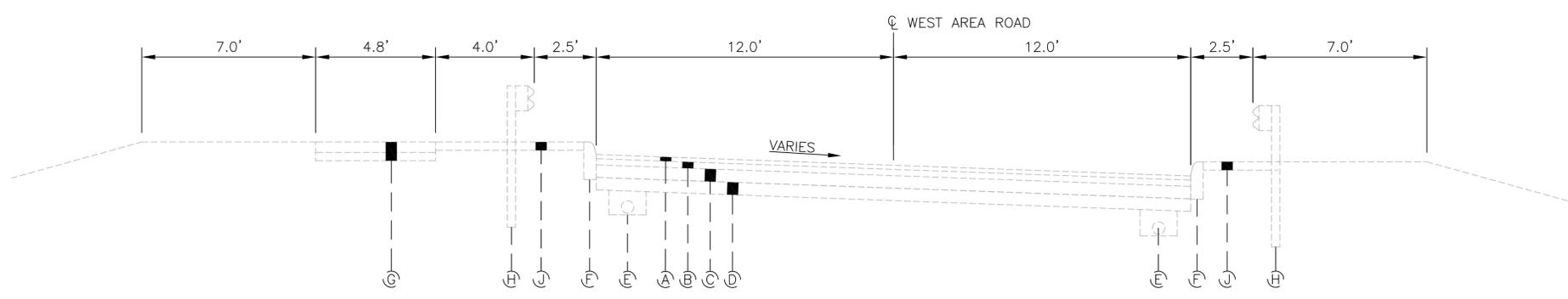
- NOTES:
1. THERE IS THE POSSIBILITY THAT THE CONTRACTOR, IN THE EXECUTION OF THE WORK, MAY ENCOUNTER A PRE-EXISTING SOIL OR GROUNDWATER CONTAMINATION OF WHICH NASA IS UNAWARE. THE CONTRACTOR SHALL LOOK FOR ANY CHANGE IN SOIL APPEARANCE SUCH AS ODORS, SOIL STAINS, ETC. OR SHEENS ON GROUND WATER. ANY CHANGES SHALL BE BROUGHT TO THE ATTENTION OF THE NASA COTR. IF A CHANGE IN SOIL APPEARANCE OR A SHEEN ON GROUNDWATER OCCURS OR IS DISCOVERED, THE CONTRACTOR SHALL STOP WORK WITHIN THE IMMEDIATE AREA OF THE IMPACT AND NOTIFY THE COTR. THE CONTRACTOR SHALL ISOLATE THE IMPACTED AREA OF THE DIFFERING SITE CONDITION TO THE SMALLEST POSSIBLE FOOTPRINT AND MAY CONTINUE WORK IN AREAS OUTSIDE OF THE IMPACTED AREA.
 2. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.



| | | | |
|--|-------------------|---|-----------------------|
| | | DRAWING/DESIGN STATUS: | |
| | | FOR BID - 01/29/2014 | |
| DRAWING MANAGEMENT SYSTEM: SSWR SUB-SYS: FACILITY: CONFIG: GMS | | NASA APPROVALS DR: DES: D.ENG: PROJ. MGR: J. SCHULTZ | |
| CONTRACTOR: BARR & PREVOST | RELEASE APPROVAL: | DATE: | |
| CONTRACT NO: NNC09BA13B | RELEASE APPROVAL: | DATE: | |
| TASK ORDER: NNC12TB09T | RELEASE APPROVAL: | DATE: | |
| DRAWN: FP | DESIGNED: RJS | CHECKED: JEP | APPROVED: [Signature] |
| APPROVED: [Signature] | APPROVAL DATE: | RELEASE STATUS: | |

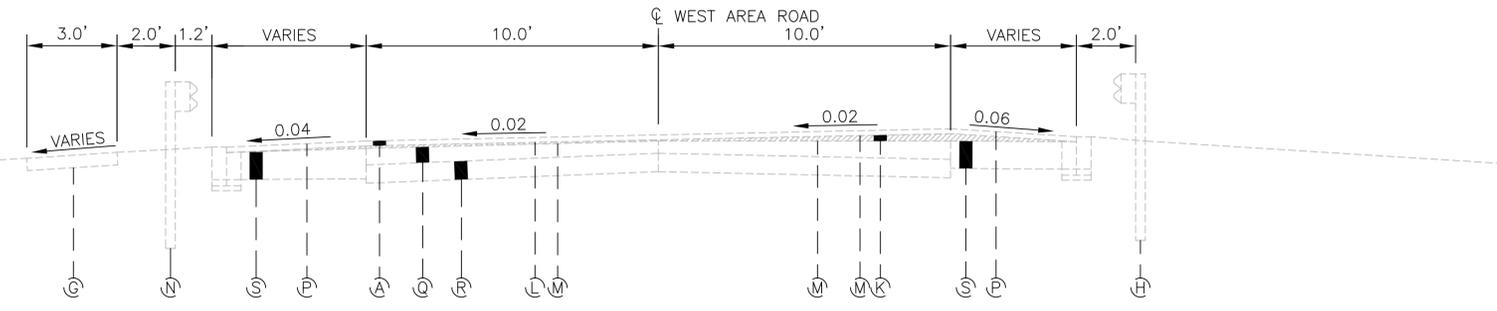
| CHG | NUM | DESCRIPTION | APP/DATE |
|---|---------------------------|-------------|-----------------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 SOIL DETERMINATIONS SCHEMATIC PLAN | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 - C - 401 | | | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: AS NOTED | OFFICIAL DATE: 01/29/2014 | | |

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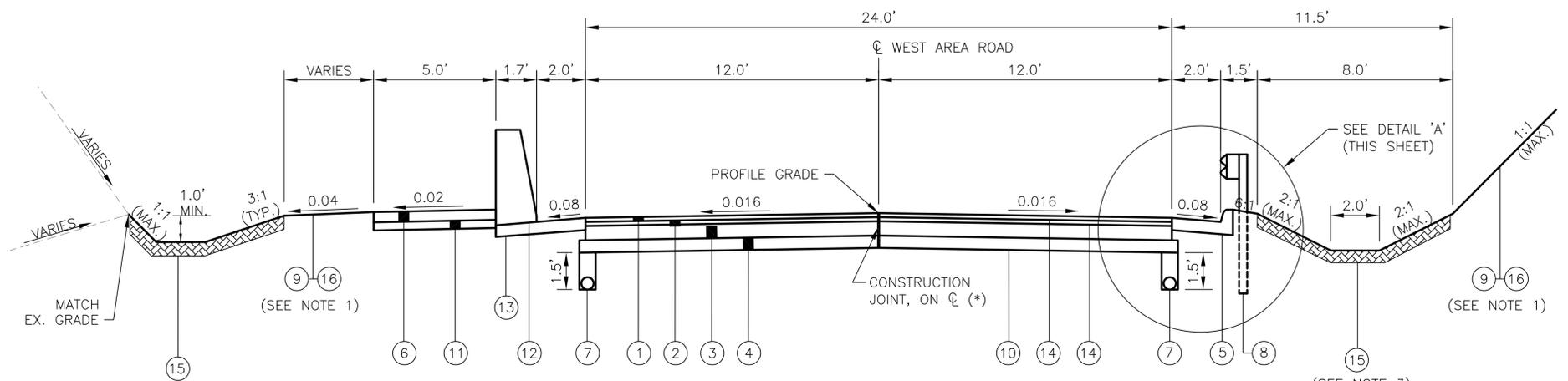
ADJOINING/EXISTING SECTION - WEST AREA ROAD

SECTION APPLIES: STA. 503+00.00



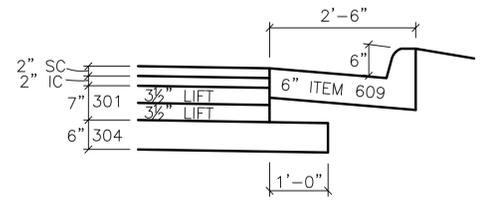
ADJOINING/EXISTING SECTION - WEST AREA ROAD

SECTION APPLIES: STA. 503+00.00 TO STA. 510+52.11



NORMAL SECTION - WEST AREA ROAD

SECTION APPLIES: STA. 507+44.49 TO STA. 508+87.42



DETAIL 'A'

NOTE:
 (*) PHASE 1 - BUILD ENTIRE RIGHT SIDE OF PAVEMENT.
 PHASE 2 - BUILD ENTIRE LEFT SIDE OF PAVEMENT.

- NOTES:
- HYDRO-SEEDING SHALL BE APPLIED TO SLOPES 2:1 OR FLATTER, WHILE SODDING REINFORCED SHALL BE APPLIED TO SLOPES STEEPER THAN 2:1. SEE CROSS SECTION SHEETS FOR LIMITS.
 - FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - SEE WALCOTT ROAD PLAN AND PROFILE DRAWINGS C-197 AND C-198 FOR LIMITS OF TIED CONCRETE BLOCK MATTING.

LEGEND (EXISTING)

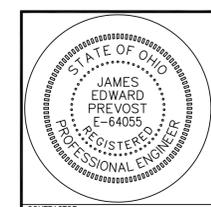
- A ODOT ITEM 404 2"
- B ODOT ITEM 402 3"
- C ODOT ITEM 301 6"
- D ODOT ITEM 304 6" UNDERDRAIN
- E ODOT TYPE 6 CURB
- F 5" CONCRETE WALK
- H GURADRAIL
- J 4" RIVER GRAVEL
- K ODOT ITEM 402
- L PROTECTIVE MEMBRANE SYSTEM
- M ODOT ITEM 407
- N RETAINING CURB
- P ODOT ITEM 409
- Q 5" ASPHALT PAVEMENT
- R 9" CRUSHED AGGREGATE BASE
- S 10" CRUSHED AGGREGATE BASE FOR SHOULDERS

LEGEND (PROPOSED)

- 1 ODOT ITEM 448 - 2" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22, CONSTRUCT IN (2) 1" LIFTS
- 2 ODOT ITEM 448 - 2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1 PG64-22, CONSTRUCT IN (2) 1" LIFTS
- 3 ODOT ITEM 301 - 7" ASPHALT CONCRETE BASE, PG64-22, CONSTRUCT IN (2) 3 1/2" LIFTS
- 4 ODOT ITEM 304 - 6" AGGREGATE BASE
- 5 ODOT ITEM 609 - COMBINATION CURB AND GUTTER, TYPE 2
- 6 ODOT ITEM 608 - 5" CONCRETE WALK
- 7 ODOT ITEM 605 - 6" UNDERDRAINS WITH FILTER FABRIC
- 8 ODOT ITEM 606 - GUARDRAIL, TYPE MGS WITH STEEL POSTS
- 9 ODOT ITEM 659 - SEEDING AND MULCHING (HYDRO-SEEDING)
- 10 ODOT ITEM 204 - SUBGRADE COMPACTION
- 11 ODOT ITEM 304 - 4" AGGREGATE BASE
- 12 ODOT ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE D
- 13 ODOT ITEM 452 - NON-REINFORCED CONCRETE PAVEMENT (TH. = 6")
- 14 ODOT ITEM 407 - TACK COAT (0.30 GAL/ SQ. YD.)
- 15 ODOT ITEM 601 - TIED CONCRETE BLOCK MAT, TYPE 3
- 16 ODOT ITEM 660 - SODDING REINFORCED

| CHG | NUM | DESCRIPTION | APP/DATE |
|-----------|-----|-------------|----------|
| REVISIONS | | | |

CAD DRAWING - DO NOT REVISE MANUALLY



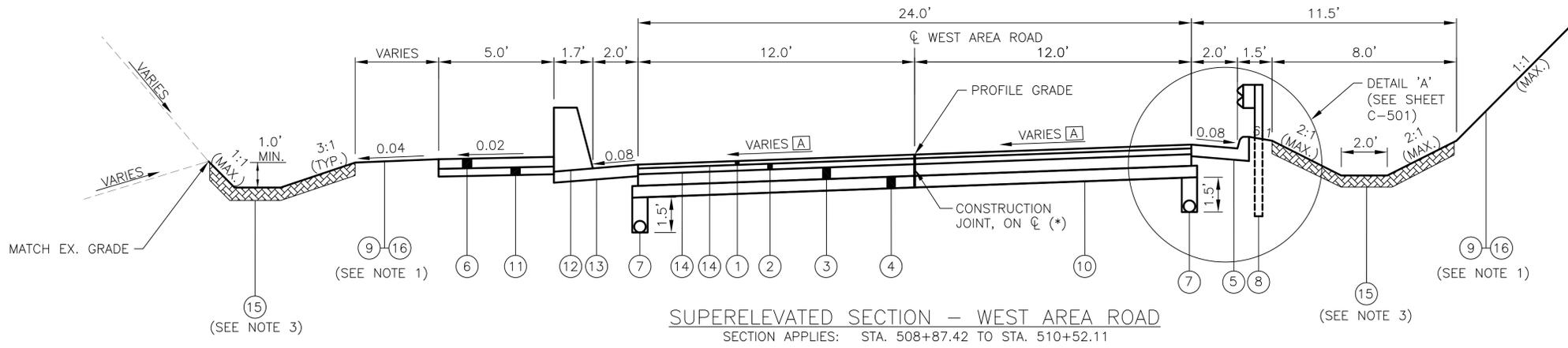
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| FOR BID - 01/29/2014 | | |
| DRAWING MANAGEMENT | | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE STATUS: | | |

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
 JOHN H. GLENN RESEARCH CENTER
 LEWIS FIELD & PLUM BROOK STATION, OHIO

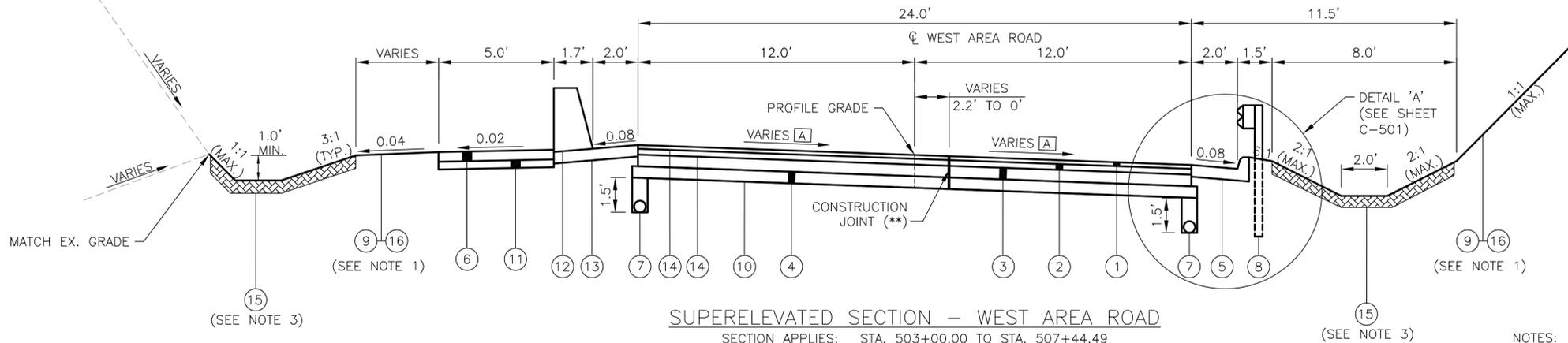
FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR
 PHASE 1

TYPICAL SECTION DETAILS
 WEST AREA ROAD
 PAVEMENT REPLACEMENT

| | | | | |
|----------------------------------|---------------------------|------------------|-------|---------|
| SIZE | BLDG/SYS | PROJECT ID | DISCP | TYP SEQ |
| CD STRM - COF20196 | | - C - 501 | | |
| AREA: NASA GLENN RESEARCH CENTER | SHEET OF | | | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER | |
| SCALE: N/A | OFFICIAL DATE: 01/29/2014 | | | |



SUPERELEVATED SECTION - WEST AREA ROAD
SECTION APPLIES: STA. 508+87.42 TO STA. 510+52.11



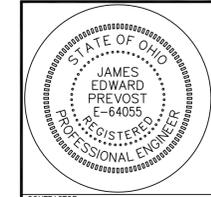
SUPERELEVATED SECTION - WEST AREA ROAD
SECTION APPLIES: STA. 503+00.00 TO STA. 507+44.49

- NOTES:**
- [A] SEE SUPERELEVATION TABLES ON SHEET C-601.
 - 1. HYDRO-SEEDING SHALL BE APPLIED TO SLOPES 2:1 OR FLATTER, WHILE SODDING REINFORCED SHALL BE APPLIED TO SLOPES STEEPER THAN 2:1. SEE CROSS SECTION SHEETS FOR LIMITS.
 - 2. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - 3. SEE WALCOTT ROAD PLAN AND PROFILE DRAWING C-197 AND C-198 FOR LIMITS OF TIED CONCRETE BLOCK MATTING.

- LEGEND (PROPOSED)**
- 1 ODOT ITEM 448 - 2" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22, CONSTRUCT IN (2) 1" LIFTS
 - 2 ODOT ITEM 448 - 2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1 PG64-22, CONSTRUCT IN (2) 1" LIFTS
 - 3 ODOT ITEM 301 - 7" ASPHALT CONCRETE BASE, PG64-22, CONSTRUCT IN (2) 3 1/2" LIFTS
 - 4 ODOT ITEM 304 - 6" AGGREGATE BASE
 - 5 ODOT ITEM 609 - COMBINATION CURB AND GUTTER, TYPE 2
 - 6 ODOT ITEM 608 - 5" CONCRETE WALK
 - 7 ODOT ITEM 605 - 6" UNDERDRAINS WITH FILTER FABRIC
 - 8 ODOT ITEM 606 - GUARDRAIL, TYPE MGS WITH STEEL POSTS
 - 9 ODOT ITEM 659 - SEEDING AND MULCHING (HYDRO-SEEDING)
 - 10 ODOT ITEM 204 - SUBGRADE COMPACTION
 - 11 ODOT ITEM 304 - 4" AGGREGATE BASE
 - 12 ODOT ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE D
 - 13 ODOT ITEM 452 - NON-REINFORCED CONCRETE PAVEMENT (TH. = 6")
 - 14 ODOT ITEM 407 - TACK COAT (0.30 GAL/ SQ. YD.)
 - 15 ODOT ITEM 601 - TIED CONCRETE BLOCK MAT, TYPE 3
 - 16 ODOT ITEM 660 - SODDING REINFORCED

- NOTES:**
- (*) PHASE 1 - BUILD ENTIRE RIGHT SIDE OF PAVEMENT.
PHASE 2 - BUILD ENTIRE LEFT SIDE OF PAVEMENT.
 - (**) STA. 503+00 TO STA. 505+04.78:
PHASE 1 - BUILD RIGHT SIDE OF PAVEMENT, LEFT OFFSET VARIES FROM 2.2' RIGHT TO CL.
PHASE 2 - BUILD ENTIRE LEFT SIDE OF PAVEMENT AND REMAINDER OF RIGHT SIDE.
STA. 505+04.78 TO STA. 507+44.49:
PHASE 1 - BUILD ENTIRE RIGHT SIDE OF PAVEMENT.
PHASE 2 - BUILD ENTIRE LEFT SIDE OF PAVEMENT.

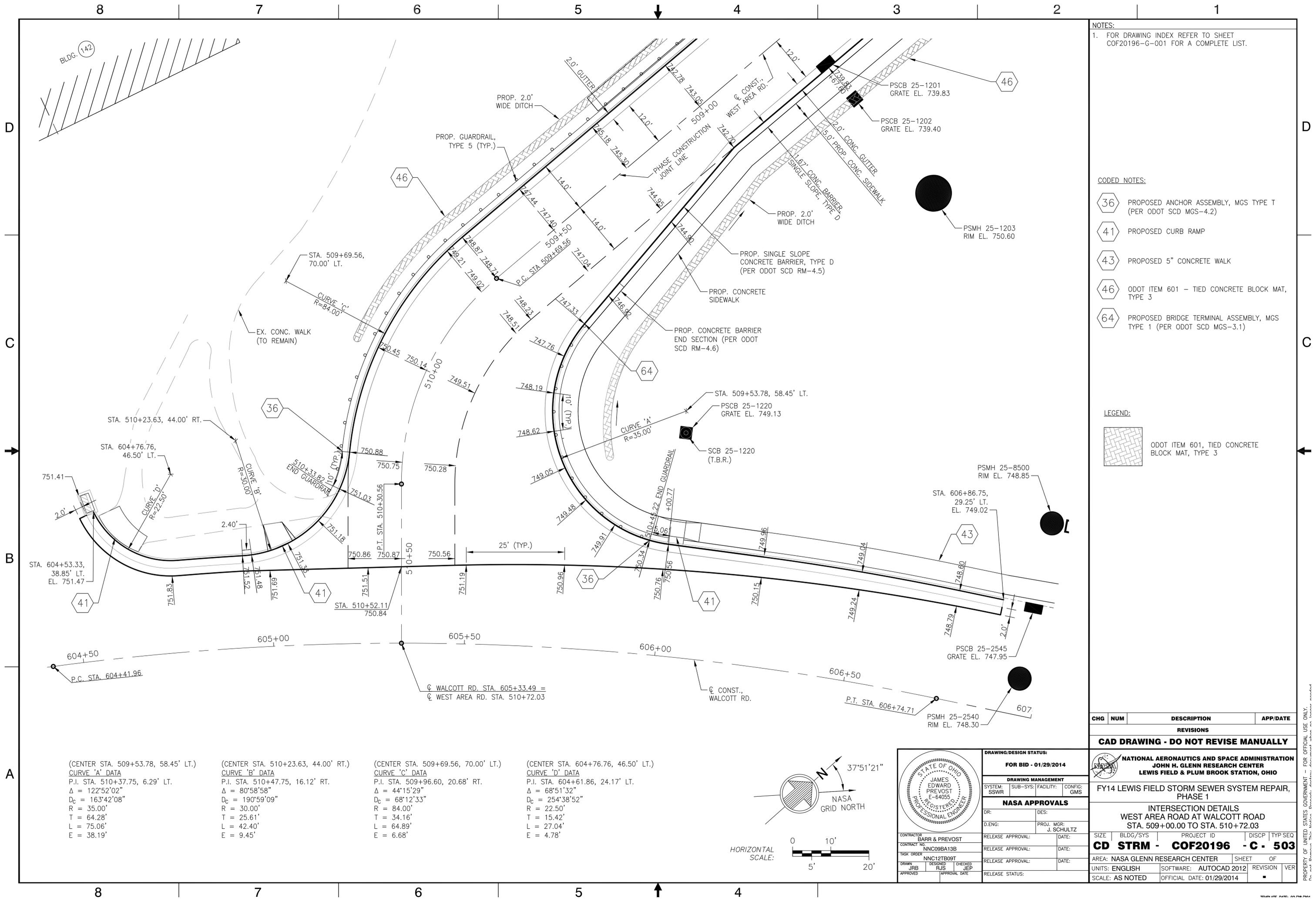
| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |



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| DRAWING/DESIGN STATUS: | | |
| FOR BID - 01/29/2014 | | |
| DRAWING MANAGEMENT | | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| CONTRACTOR: BARR & PREVOST | RELEASE APPROVAL: | DATE: |
| CONTRACT NO: NNC09BA13B | RELEASE APPROVAL: | DATE: |
| TASK ORDER: NNC12TB09T | RELEASE APPROVAL: | DATE: |
| DRAWN: FP | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: | APPROVAL DATE: | RELEASE STATUS: |

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|---|---------------------------|------------------|---------------|
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION | | | |
| JOHN H. GLENN RESEARCH CENTER | | | |
| LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR PHASE 1 | | | |
| TYPICAL SECTION DETAILS | | | |
| WEST AREA ROAD | | | |
| PAVEMENT REPLACEMENT | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 502 | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: N/A | OFFICIAL DATE: 01/29/2014 | | |

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NOTES:
 1. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

- CODED NOTES:
- 36 PROPOSED ANCHOR ASSEMBLY, MGS TYPE T (PER ODOT SCD MGS-4.2)
 - 41 PROPOSED CURB RAMP
 - 43 PROPOSED 5" CONCRETE WALK
 - 46 ODOT ITEM 601 - TIED CONCRETE BLOCK MAT, TYPE 3
 - 64 PROPOSED BRIDGE TERMINAL ASSEMBLY, MGS TYPE 1 (PER ODOT SCD MGS-3.1)

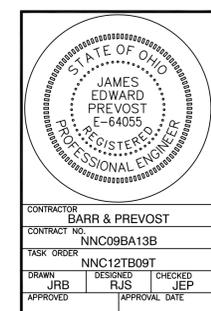
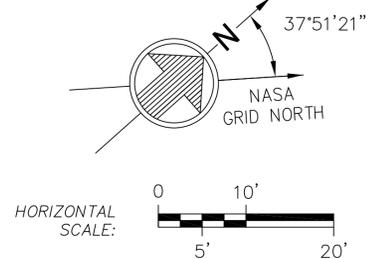
LEGEND:
 ODOT ITEM 601, TIED CONCRETE BLOCK MAT, TYPE 3

(CENTER STA. 509+53.78, 58.45' LT.)
 CURVE 'A' DATA
 P.I. STA. 510+37.75, 6.29' LT.
 $\Delta = 122^{\circ}52'02''$
 $D_c = 163'42'08''$
 $R = 35.00'$
 $T = 64.28'$
 $L = 75.06'$
 $E = 38.19'$

(CENTER STA. 510+23.63, 44.00' RT.)
 CURVE 'B' DATA
 P.I. STA. 510+47.75, 16.12' RT.
 $\Delta = 80^{\circ}58'58''$
 $D_c = 190^{\circ}59'09''$
 $R = 30.00'$
 $T = 25.61'$
 $L = 42.40'$
 $E = 9.45'$

(CENTER STA. 509+69.56, 70.00' LT.)
 CURVE 'C' DATA
 P.I. STA. 509+96.60, 20.68' RT.
 $\Delta = 44^{\circ}15'29''$
 $D_c = 68^{\circ}12'33''$
 $R = 84.00'$
 $T = 34.16'$
 $L = 64.89'$
 $E = 6.68'$

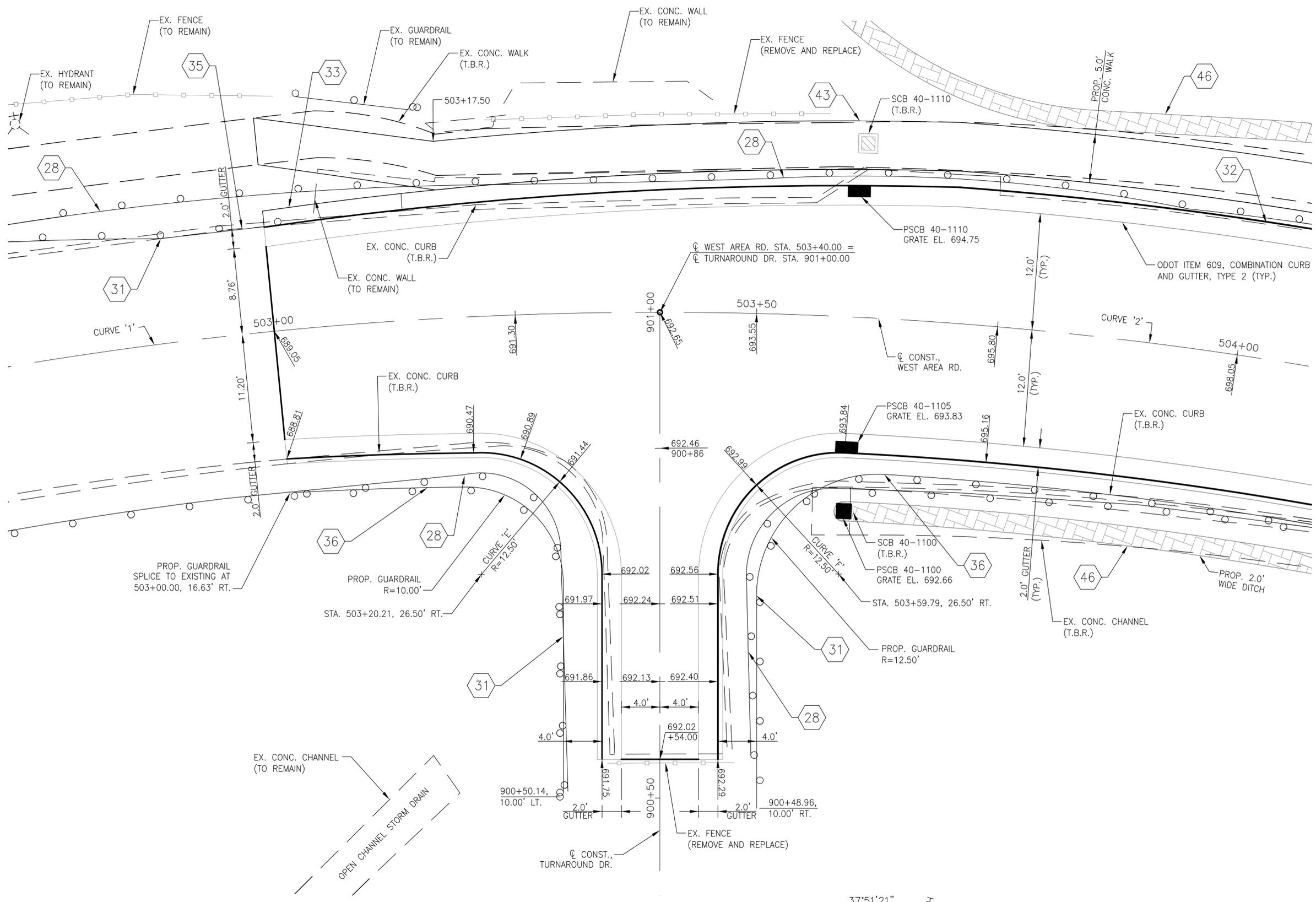
(CENTER STA. 604+76.76, 46.50' LT.)
 CURVE 'D' DATA
 P.I. STA. 604+61.86, 24.17' LT.
 $\Delta = 68^{\circ}51'32''$
 $D_c = 254^{\circ}38'52''$
 $R = 22.50'$
 $T = 15.42'$
 $L = 27.04'$
 $E = 4.78'$



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|---|--------------------|-------------|
| DRAWING/DESIGN STATUS: FOR BID - 01/29/2014 | | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| DRAWING MANAGEMENT | | |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: | J. SCHULTZ |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE STATUS: | | |

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|---------------------------|------------------|-----------------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |
|  NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| INTERSECTION DETAILS WEST AREA ROAD AT WALCOTT ROAD STA. 509+00.00 TO STA. 510+72.03 | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 503 | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: AS NOTED | OFFICIAL DATE: 01/29/2014 | | |

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NOTES:
 1. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 2. ALL PAVEMENT ELEVATIONS AND CURB RADII ARE TO FACE OF PROPOSED CURBS.

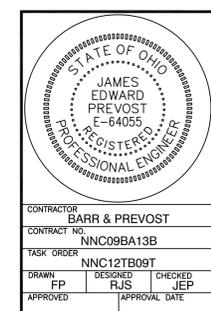
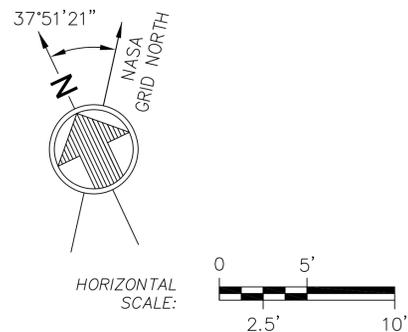
- CODED NOTES:
- 28 EXISTING GUARDRAIL TO BE REMOVED
 - 31 PROPOSED GUARDRAIL, TYPE MGS WITH STEEL POSTS
 - 32 PROPOSED SINGLE SLOPE CONCRETE BARRIER (PER ODOT SCD RM-4.5)
 - 33 PROPOSED CONCRETE BARRIER END SECTION (PER ODOT SCD RM-4.6)
 - 35 PROPOSED BRIDGE TERMINAL ASSEMBLY, MGS TYPE 2 (PER ODOT SCD MGS-3.2)
 - 36 PROPOSED ANCHOR ASSEMBLY, MGS TYPE T (PER ODOT SCD MGS-4.2)
 - 43 PROPOSED 5" CONCRETE WALK
 - 46 TIED CONCRETE BLOCK MAT, TYPE 3 (PER ODOT CMS 712.12)

(CENTER STA. 503+20.21, 26.50' RT.)
 CURVE 'E' DATA
 P.I. STA. 503+33.79, 13.78' RT.
 $\Delta = 92^\circ 46' 13''$
 $D_c = 98' 22' 59''$
 $R = 12.50'$
 $T = 13.12'$
 $L = 20.24'$
 $E = 5.62'$

(CENTER STA. 503+59.79, 26.50' RT.)
 CURVE 'F' DATA
 P.I. STA. 503+46.21, 13.78' RT.
 $\Delta = 92^\circ 46' 13''$
 $D_c = 98' 22' 59''$
 $R = 12.50'$
 $T = 13.12'$
 $L = 20.24'$
 $E = 5.62'$

CURVE DATA - CURVE '1'
 P.I. STA. 501+04.20
 $\Delta = 11^\circ 22' 26''$
 $D_c = 5' 28' 33''$
 $R = 1046.34'$
 $T = 104.20'$
 $L = 207.71'$
 $E = 5.18'$
 $e_{max} = 0.031 \text{ FT/FT}$

CURVE DATA - CURVE '2'
 P.I. STA. 504+61.71
 $\Delta = 63^\circ 39' 01''$
 $D_c = 14' 00' 00''$
 $R = 409.26'$
 $T = 254.00'$
 $L = 454.64'$
 $E = 72.41'$
 $e_{max} = 0.04 \text{ FT/FT}$



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|---|--------------------|-------------|
| DRAWING/DESIGN STATUS: FOR BID - 01/29/2014 | | |
| DRAWING MANAGEMENT | | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: | J. SCHULTZ |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE STATUS: | | |

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|---------------------------|------------------|---------------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| INTERSECTION DETAILS WEST AREA ROAD AT TURNAROUND STA. 502+70 TO STA. 504+10 | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 504 | |
| AREA: NASA GLENN RESEARCH CENTER | SHEET | OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: AS NOTED | OFFICIAL DATE: 01/29/2014 | | |

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8 7 6 5 4 3 2 1

BLDG. (70)

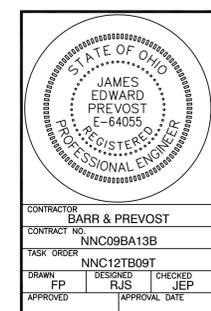
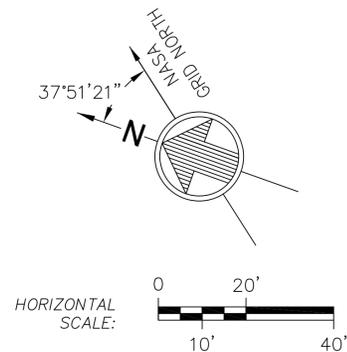
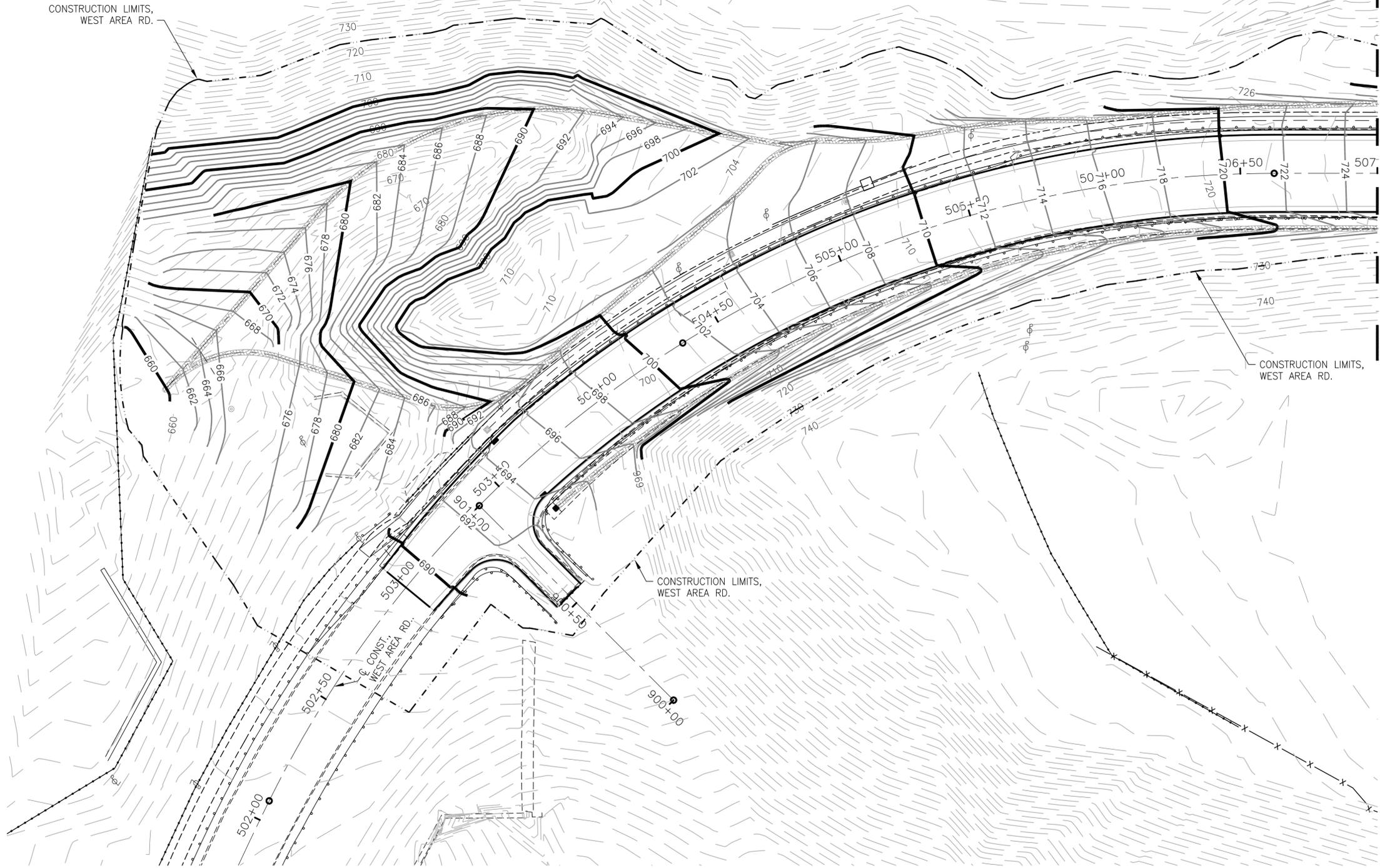
BLDG. (126)

CONSTRUCTION LIMITS,
WEST AREA RD.

CONSTRUCTION LIMITS,
WEST AREA RD.

MATCH LINE - STA. 507+00 (SEE SHEET C-506)

- NOTES:
- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - CONTRACTOR TO GRADE AROUND EXISTING UTILITY POLES AT STATIONS:
 503+69.42, 20.93' LT.
 504+47.19, 23.62' LT.
 504+82.34, 26.13' LT.
 505+57.61, 27.82' LT.
- LEGEND:
- PROPOSED MAJOR CONTOUR
 - PROPOSED MINOR CONTOUR
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - PROPOSED CONSTRUCTION LIMITS



| | | |
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| DRAWING/DESIGN STATUS: | | |
| FOR BID - 01/29/2014 | | |
| DRAWING MANAGEMENT | | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE STATUS: | | |

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|---------------------------|------------------|---------------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 GRADING PLAN WEST AREA ROAD STA. 502+00 TO STA. 507+00 | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 505 | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: AS NOTED | OFFICIAL DATE: 01/29/2014 | | |

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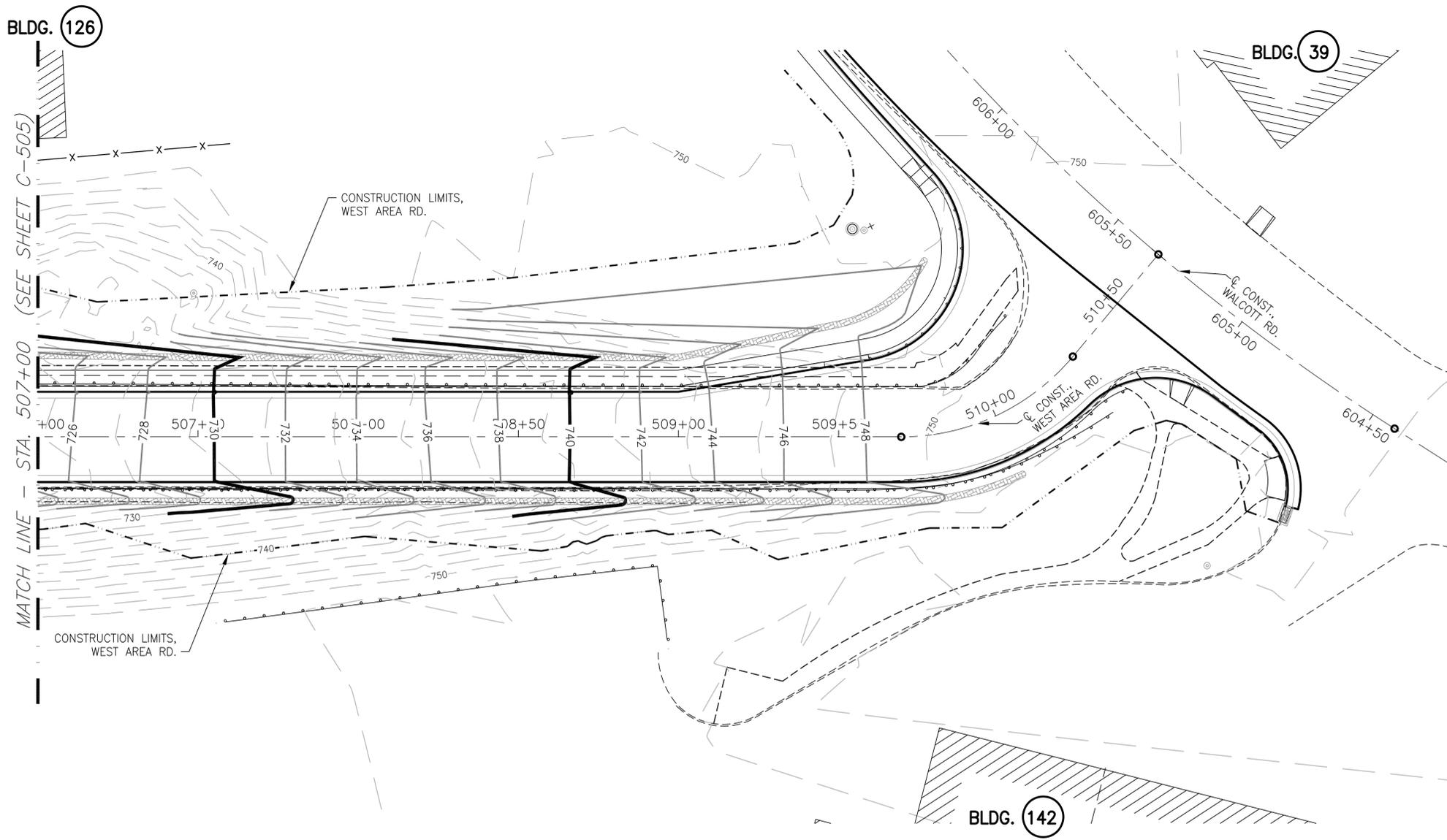
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LEGEND:

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED CONSTRUCTION LIMITS



BLDG. 126

MATCH LINE - STA. 507+00 (SEE SHEET C-505)

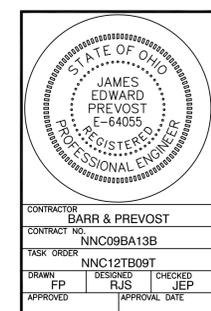
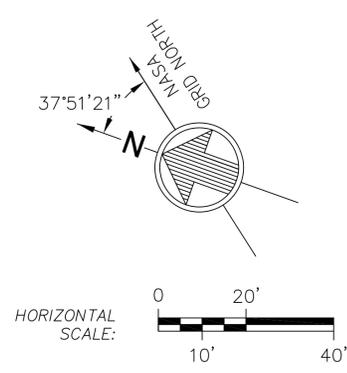
CONSTRUCTION LIMITS, WEST AREA RD.

BLDG. 39

CONST. WALCOTT RD. 605+00

CONST. WEST AREA RD. 510+00

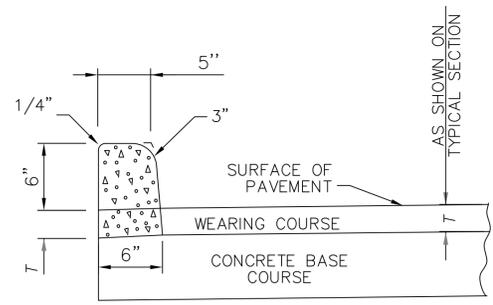
BLDG. 142



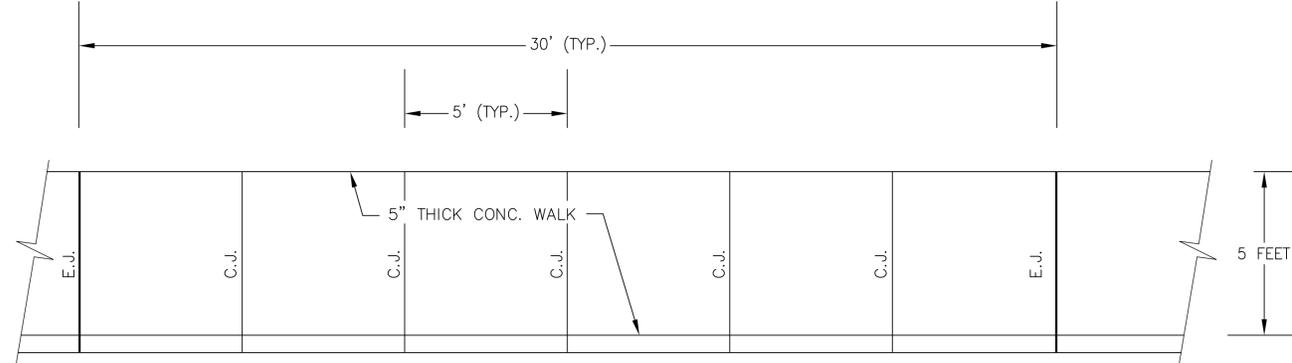
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| FOR BID - 01/29/2014 | | |
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| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
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| CHG | NUM | DESCRIPTION | APP/DATE |
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| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| GRADING PLAN WEST AREA ROAD STA. 507+00 TO STA. 510+72.03 | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 506 | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
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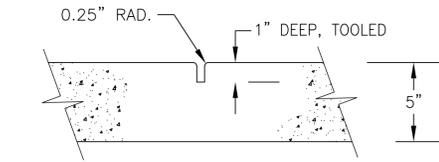


CURB DETAILS
NOT TO SCALE

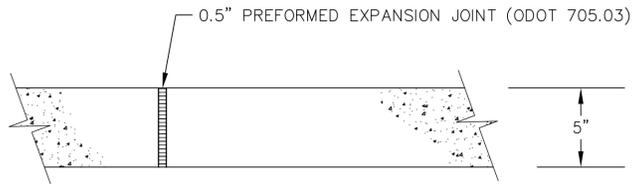


E.J.=EXPANSION JOINT
C.J.=CONTROL JOINT

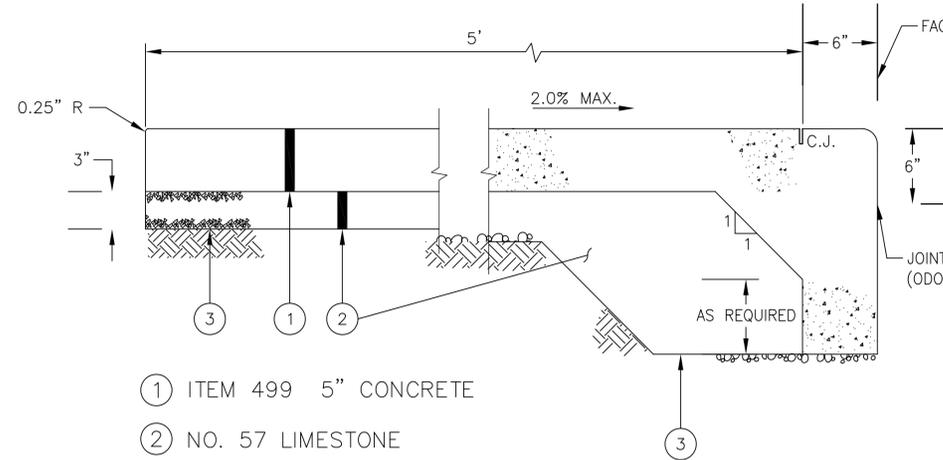
SIDEWALK PLAN
NOT TO SCALE



SIDEWALK CONTROL JOINT
NOT TO SCALE



SIDEWALK EXPANSION JOINT
NOT TO SCALE



- ① ITEM 499 5" CONCRETE
- ② NO. 57 LIMESTONE
- ③ ITEM 203 SUBGRADE COMPACTION

CONCRETE SIDEWALK SECTION
NOT TO SCALE

NOTES:

- 1. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

| CHG | NUM | DESCRIPTION | APP/DATE |
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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR,
PHASE 1

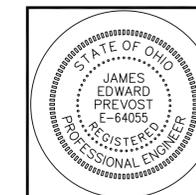
CURB AND SIDEWALK
MISCELLANEOUS DETAILS

SIZE: BLDG/SYS: PROJECT ID: DISCP: TYP SEQ:
CD STRM - COF20196 - C - 511

AREA: NASA GLENN RESEARCH CENTER SHEET OF

UNITS: ENGLISH SOFTWARE: AUTOCAD 2012 REVISION VER

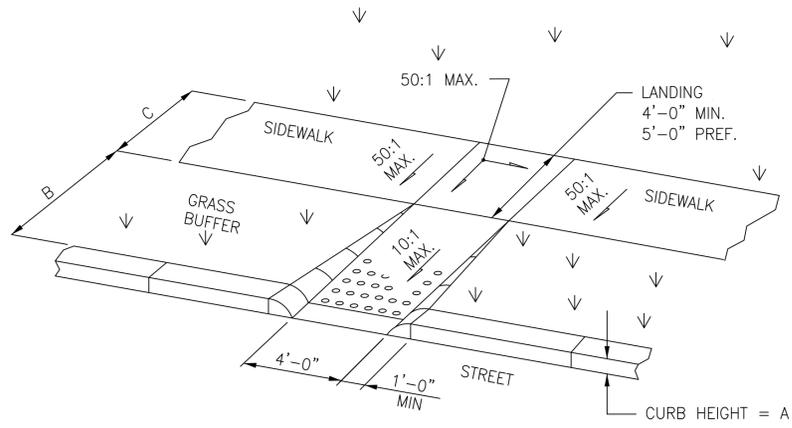
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| CONTRACT NO: NNC09BA13B | RELEASE APPROVAL: | DATE: |
| TASK ORDER: NNC12TB09T | RELEASE APPROVAL: | DATE: |
| DRAWN: RTE | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: | APPROVAL DATE: | RELEASE STATUS: |

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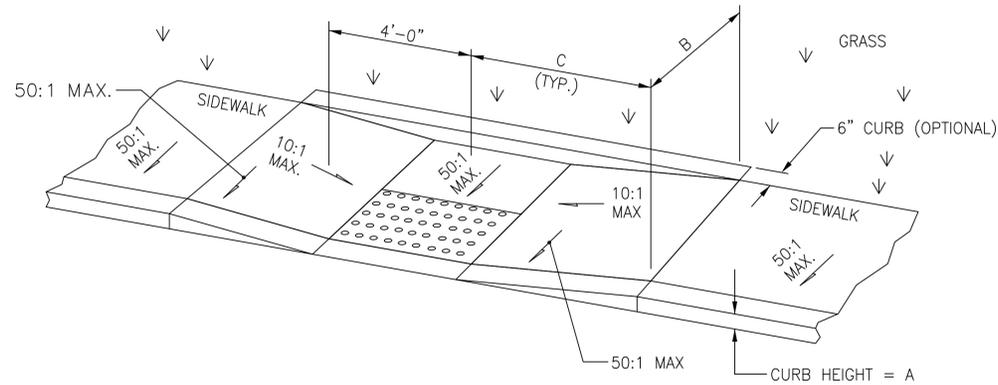


TYPE A2 RAMP (PERPENDICULAR WITH RETURNED CURB)
NOT TO SCALE

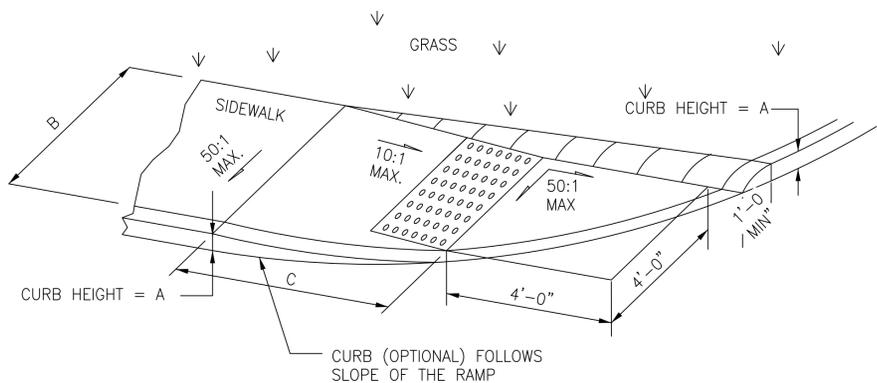
| TYPE A2 RAMP DIMENSIONS | | | |
|-------------------------|---------|---------|---------|
| SHEET NO | A (FT.) | B (FT.) | C (FT.) |
| C-151 | 0.35 | 3.50 | 5.28 |
| C-183 | 0.54 | 5.40 | 5.52 |
| C-198 | 0.62 | 6.20 | 5.18 |
| C-198 | 0.56 | 5.60 | 5.74 |

| TYPE B2 RAMP DIMENSIONS | | | |
|-------------------------|---------|---------|---------|
| SHEET NO | A (FT.) | B (FT.) | C (FT.) |
| C-101 | 0.47 | 6.15 | 4.70 |
| C-103 | 0.41 | 5.25 | 4.10 |
| C-104 | 0.41 | 5.25 | 4.10 |
| C-104 | 0.36 | 4.69 | 3.60 |
| C-105 | 0.49 | 5.93 | 4.90 |
| C-121 | 0.32 | 5.76 | 3.20 |
| C-184 | 0.50 | 5.02 | 5.00 |

| TYPE B3 RAMP DIMENSIONS | | | |
|-------------------------|---------|---------|---------|
| SHEET NO | A (FT.) | B (FT.) | C (FT.) |
| C-102 | 0.48 | 5.82 | 4.80 |
| C-102 | 0.49 | 6.09 | 4.90 |
| C-102 | 0.50 | 5.67 | 5.00 |
| C-103 | 0.51 | 6.04 | 5.10 |
| C-103 | 0.29 | 5.48 | 2.90 |
| C-103 | 0.52 | 5.62 | 5.20 |
| C-103 | 0.39 | 5.30 | 3.90 |
| C-104 | 0.36 | 5.64 | 3.60 |
| C-104 | 0.55 | 4.92 | 5.50 |
| C-104 | 0.30 | 5.71 | 3.00 |
| C-114 | 0.29 | 5.79 | 2.90 |
| C-114 | 0.29 | 5.90 | 2.90 |
| C-122 | 0.35 | 6.79 | 3.50 |



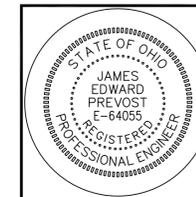
TYPE B2 RAMP (DOUBLE SIDED PARALLEL)
NOT TO SCALE



TYPE B3 RAMP (SINGLE SIDED PARALLEL)
NOT TO SCALE

- NOTES:
1. THE RUNNING SLOPE OF THE RAMP SHALL BE 10:1 OR FLATTER. FOR EXISTING SIDEWALKS, WHERE THE MAXIMUM RAMP SLOPE IS NOT FEASIBLE DUE TO SITE CONSTRAINTS (e.g. UTILITY POLES OR VAULTS, RIGHT-OF-WAY LIMITS), IT MAY REDUCED AS FOLLOWS:
10:1 FOR A MAX. RISE OF 6"
8:1 FOR A MAX. RISE OF 3"
6:1 OVER A MAX. RUN OF 2'-0" FOR HISTORIC AREAS WHERE A FLATTER SLOPE IS NOT FEASIBLE.
 2. TO PREVENT CHASING THE GRADE INDEFINITELY, THE TRANSITION FROM EXISTING SIDEWALK TO THE SHADED CURB RAMP AREA IS NOT REQUIRED TO EXCEED 15 FEET IN LENGTH.
 3. WHILE RAMPS MAY BE SKEWED TO THE CROSSWALK, THE ENTIRE LOWER LANDING AREA MUST FALL WITHIN THE CROSSWALK THAT THE RAMP SERVES AND CANNOT BE LOCATED WITHIN THE TRAVELED LANE OF TRAFFIC.
 4. THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, LANDING, OR BLENDED TRANSITIONS SHALL BE 20:1 OR FLATTER.
 5. THE BOTTOM EDGE OF THE RAMP SHALL CHANGE PLANES PERPENDICULAR TO THE LANDING.
 6. THE EDGE OF THE CURB SHALL BE FLUSH WITH THE EDGE OF THE ADJACENT PAVEMENT AND GUTTER. SURFACE SLOPES THAT MEET GRADE BREAKS SHALL ALSO BE FLUSH.
 7. RAMP LANDINGS SHALL BE 4'x4' MIN. WITH A 50:1 OR FLATTER CROSS SLOPE AND RUNNING SLOPE.
 8. SEE ODOT STANDARD DRAWING BP-7.1 FOR ADDITIONAL CURB RAMP DETAILS.
 9. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

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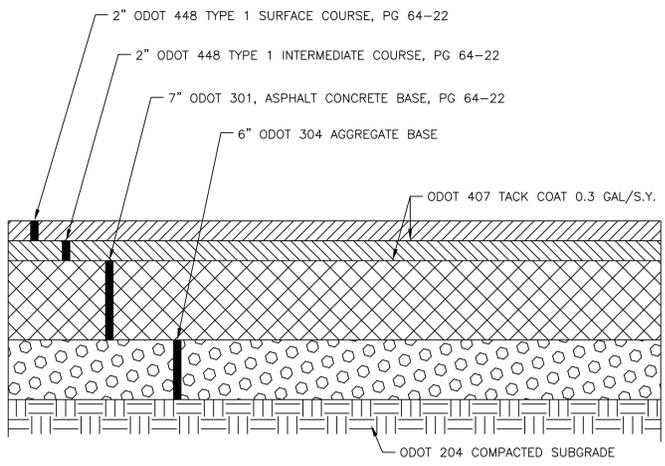
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| D.ENG: | PROJ. MGR: J. SCHULTZ | |
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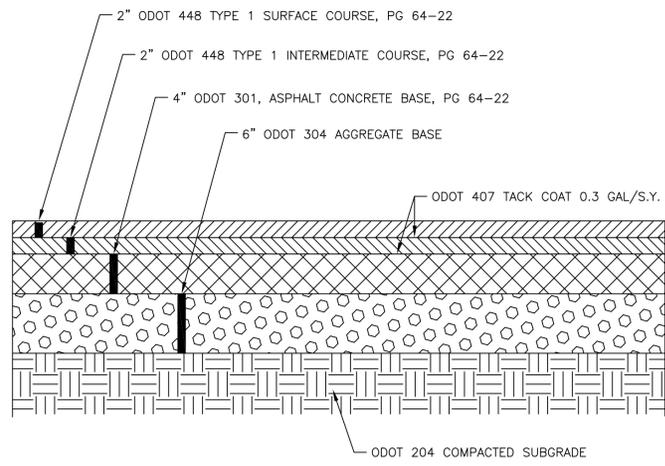
FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR,
PHASE 1
CURB RAMP
MISCELLANEOUS DETAILS

| | | | | |
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| SIZE | BLDG/SYS | PROJECT ID | DISCP | TYP SEQ |
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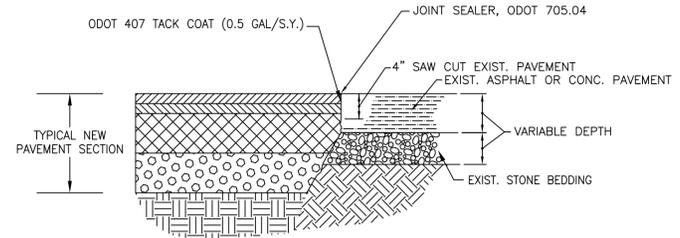
NOTES:
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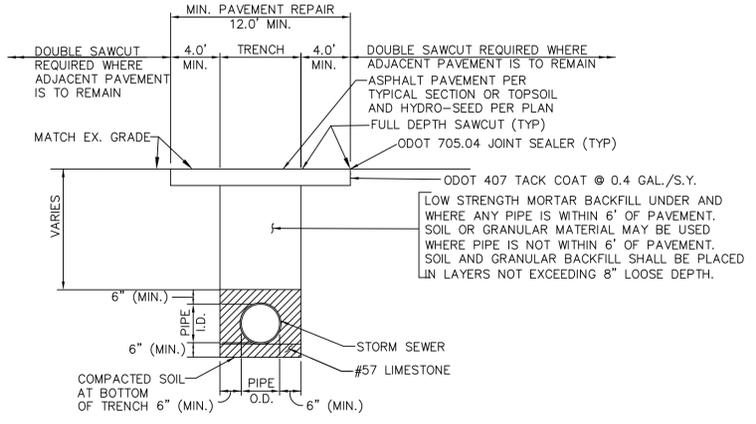
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 ROADS
 DETAIL PVMT-A-1**
 Not to Scale



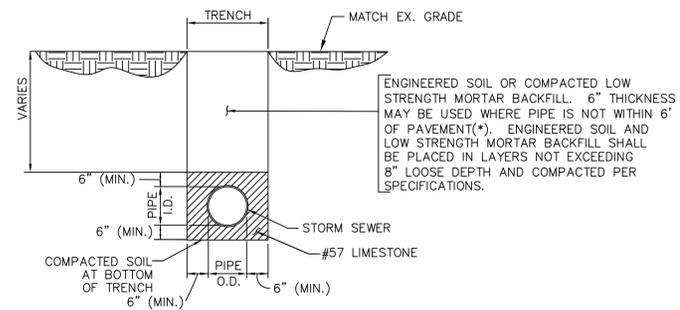
**TYPICAL ASPHALT PAVEMENT SECTION
 DRIVES AND PARKING AREAS
 DETAIL PVMT-A-2**
 Not to Scale



**TYPICAL PAVEMENT BUTT JOINT
 DETAIL PVMT-B-2**
 Not to Scale

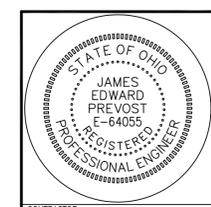


**TYPICAL STORM SEWER TRENCH
 WITHIN LIMITS OF PAVEMENT
 DETAIL EXCV-A-2c**
 NOT TO SCALE



**TYPICAL STORM SEWER TRENCH
 OUTSIDE LIMITS(**) OF PAVEMENT
 DETAIL EXCV-A-1a**
 NOT TO SCALE

| CHG | NUM | DESCRIPTION | APP/DATE |
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| REVISIONS | | | |
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| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| PAVEMENT & TRENCHING MISCELLANEOUS DETAILS | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISC/TYP SEQ |
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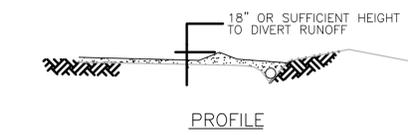
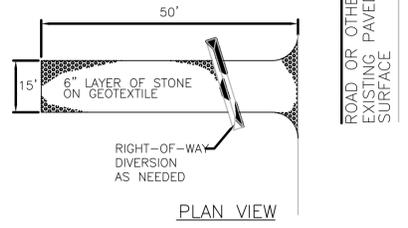
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NOTES:
1. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

| TEMPORARY SEEDING SPECIES SELECTION | | | |
|-------------------------------------|--------------------|--------------|----------|
| SEEDING DATES | SPECIES | LB./1,000FT. | PER AC. |
| MARCH 1 - AUGUST 15 | TALL FESCUE | 3 | 4 BUSHEL |
| | ANNUAL RYEGRASS | 1 | 40 LBS. |
| | PERENNIAL RYEGRASS | 1 | 40 LBS. |
| AUGUST 16 - NOVEMBER 1 | RYE | 3 | 2 BUSHEL |
| | TALL FESCUE | 1 | 40 LBS. |
| | ANNUAL RYEGRASS | 1 | 40 LBS. |
| NOVEMBER 1 - SPRING SEEDING | WHEAT | 3 | 2 BUSHEL |
| | TALL FESCUE | 1 | 40 LBS. |
| | ANNUAL RYEGRASS | 1 | 40 LBS. |

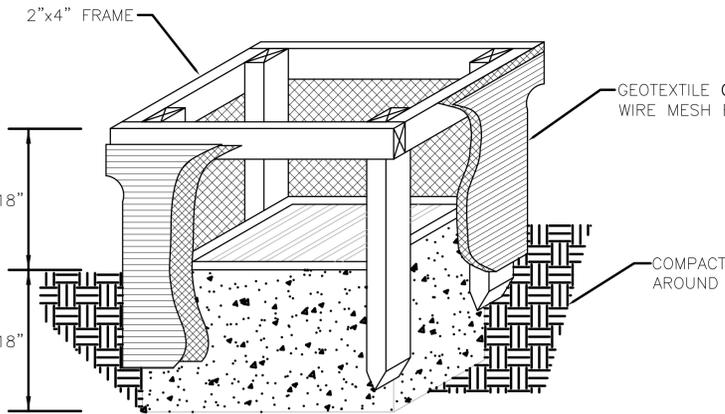
NOTE: OTHER APPROVED SEED SPECIES MAY BE SUBSTITUTED

TEMPORARY SEEDING NEEDS TO BE ESTABLISHED WITHIN SEVEN (7) DAYS ON ALL BARE AREAS THAT ARE NOT GOING TO BE DISTURBED FOR 21 OR MORE DAYS. ALSO, TEMPORARY SEEDING NEEDS TO BE ESTABLISHED WITHIN 2 DAYS ON AREAS WITHIN FIFTY FEET OF A STREAM.



CONSTRUCTION ENTRANCE NOTES:

- STONE SIZE - TWO-INCH STONE SHALL BE USED, OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH - THE CONSTRUCTION ENTRANCE SHALL BE AS LONG AS REQUIRED TO STABILIZE HIGH TRAFFIC AREAS BUT NOT LESS THAN 50 FEET.
- THICKNESS - THE STONE LAYER SHALL BE AT LEAST 6 INCHES THICK.
- WIDTH - THE ENTRANCE SHALL BE AT LEAST 15 FEET WIDE.
- BEDDING - A GEOTEXTILE SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. IT SHALL HAVE A GRAB TENSILE STRENGTH OF AT LEAST 200 LBS. AND A MULLEN BURST STRENGTH OF AT LEAST 190 LBS.
- CULVERT - A PIPE OR CULVERT SHALL BE CONSTRUCTED UNDER THE ENTRANCE IF NEEDED TO PREVENT SURFACE WATER FLOWING ACROSS THE ENTRANCE FROM BEING DIRECTED OUT ONTO PAVED SURFACES.

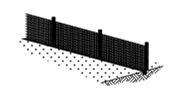
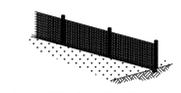
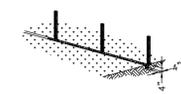


- INLET PROTECTION SHALL BE CONSTRUCTED EITHER BEFORE UPSLOPE LAND DISTURBANCE OR BEFORE THE STORM DRAIN BECOMES OPERATIONAL.
- THE EARTH AROUND THE INLET SHALL BE EXCAVATED COMPLETELY TO A DEPTH OF AT LEAST 18".
- THE WOODEN FRAME & POSTS SHALL BE CONSTRUCTED OF 2 BY 4 IN. CONSTRUCTION GRADE LUMBER. POSTS SHALL BE DRIVEN 2 FT. INTO THE GROUND AT EACH CORNER OF THE INLET. SECURE FRAME TO POSTS USING THE OVERLAP JOINT METHOD AS SHOWN. THE TOP OF THE FRAME SHALL BE AT LEAST 6 IN. BELOW ADJACENT ROADS IF PONDED WATER WOULD POSE A SAFETY HAZARD TO TRAFFIC.
- WIRE MESH SHALL BE OF SUFFICIENT STRENGTH TO SUPPORT FABRIC WITH WATER FULLY IMPOUNDED AGAINST IT. IT SHALL BE STRETCHED TIGHTLY AROUND THE FRAME AND FASTENED SECURELY TO THE FRAME.
- GEOTEXTILE SHALL HAVE AN EQUIVALENT OPENING SIZE OF 20-40 MESH AND BE RESILIENT TO SUNLIGHT. IT SHALL BE STRETCHED TIGHTLY AROUND THE FRAME AND FASTENED SECURELY. IT SHALL EXTEND FROM THE TOP OF THE FRAME TO 18 IN. BELOW THE INLET NOTCH ELEVATION. THE GEOTEXTILE SHALL OVERLAP ACROSS ONE SIDE OF THE INLET SO THE ENDS OF THE CLOTH ARE NOT FASTENED TO THE SAME POST.
- BACKFILL SHALL BE PLACED AROUND THE INLET IN COMPACTED 6 IN. LAYERS UNTIL THE EARTH IS EVEN WITH NOTCH ELEVATION ON ENDS AND TOP ELEVATION ON SIDES.
- A COMPACTED EARTH DIKE OR A CHECK DAM SHALL BE CONSTRUCTED IN THE DITCH LINE BELOW THE INLET IF THE INLET IS NOT IN A DEPRESSION AND IF RUNOFF BYPASSING THE INLET WILL NOT FLOW TO A SETTLING POND. THE TOP OF THE EARTH DIKES SHALL BE AT LEAST 6 IN. HIGHER THAN THE TOP OF THE FRAME.

INLET PROTECTION (IP)

SILT FENCE
CONSTRUCTION SPECIFICATIONS

- SILT FENCE SHALL BE CONSTRUCTED BEFORE UPSLOPE DISTURBANCE BEGINS OR WITHIN 7 DAYS OF FIRST GRUBBING.
- THE HEIGHT OF THE SILT FENCE SHALL NOT EXCEED 36-INCHES, OR BE LESS THAN 16 INCHES. STORAGE HEIGHT SHALL NEVER EXCEED 18 INCHES, OR HALF OF THE TOTAL HEIGHT ABOVE THE ORIGINAL GROUND.
- THE FENCE LINE SHALL FOLLOW LEVEL CONTOURS AS CLOSELY AS POSSIBLE.
- IF POSSIBLE, THE FILTER FABRIC SHALL BE CUT FROM A CONTINUOUS ROLL TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SECURELY WRAPPED AROUND A POST.
- POST SPACING SHALL NOT EXCEED 6 FEET. WHERE POSSIBLE, VEGETATION SHALL BE PRESERVED FOR ±5 FEET UPSLOPE FROM THE SILT FENCE. IF VEGETATION IS REMOVED, IT SHALL BE RESTORED WITHIN 7 DAYS FROM INSTALLATION OF THE SILT FENCE.
- SEAMS BETWEEN SECTIONS OF SILT FENCE SHALL BE OVERLAPPING WITH THE STAKES OF EACH SECTION WRAPPED TOGETHER BEFORE DRIVING INTO THE GROUND.
- TURN THE ENDS OF THE FENCE UPHILL APPROXIMATELY 2 FEET. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF THE POSTS AND UPSLOPE FROM THE BARRIER.
- FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
- THE TRENCH SHALL BACKFILLED AND THE SOIL COMPACTED OVER THE TOE OF THE FILTER FABRIC.
- SILT FENCES PLACED AT THE TOE OF A SLOPE SHALL BE SET AT LEAST 10 FEET FROM THE TOE IN ORDER TO INCREASE PONDING VOLUME. SILT FENCES ARE TO BE USED ONLY IN SITUATIONS IN WHICH SHEET FLOW IS EXPECTED, BUT NOT IN DRAINAGE DITCHES, CHANNELS OR RAVINES IN WHICH CHANNELIZED FLOW OCCURS. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE EXCEEDED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED AND SEDIMENT STORED BEHIND THE SILT FENCE HAS BEEN REMOVED.



SEEDING:
APPLY AS EARLY IN THE DAY AS POSSIBLE, BUT NO LATER THAN AT THE END OF THE DAY TO BENEFIT FROM MOISTURE STILL IN THE SURFACE LAYER.

LIME & FERTILIZER:
TAKE A SOIL TEST TO DETERMINE ACTUAL AMOUNTS OF NITROGEN, PHOSPHOROUS AND POTASH NEEDED.
OR APPLY 15 POUNDS OF 10-10-10 PER 1,000 SQUARE FEET.
ADD LIME AT THE RATE OF 100 POUNDS PER 1,000 SQUARE FEET.

TIMELINESS:
IMMEDIATELY AFTER THE WORK IS COMPLETED. NO LATER THAN AT THE END OF THE DAY.

MULCHING:
APPLY STRAW AT THE RATE OF 90 LBS. PER 1,000 SQUARE FEET (2-3 BALES) OR 2 TONS PER ACRE OR OTHER MULCHES ACCORDING TO MANUFACTURERS SPECIFICATIONS.

TEMPORARY SEEDING (TS)

TEMPORARY CONSTRUCTION ENTRANCE (CE)

MAINTENANCE AND INSPECTION

- SILT FENCE SHALL BE INSPECTED DAILY AND AFTER EACH SIGNIFICANT STORM (1/2-INCH IN 24 HOURS). ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. SEDIMENT MAY BE REMOVED AFTER EACH STORM, BUT MUST BE REMOVED WHEN IT REACHES 1/3± HEIGHT OF THE FENCE (9 INCHES MAXIMUM). THE FABRIC SHALL BE REPLACED WHEN IT IS TORN, HAS HOLES, DECOMPOSES OR IS NO LONGER DETAINING WATER FOR SEDIMENTATION AND THE BARRIER IS STILL REQUIRED. THE POSTS SHALL BE REPLACED IF THEY ARE BENT OR BROKEN. FENCES THAT ARE KNOCKED DOWN OR HAVE JOINTS THAT ARE SEPARATED OR ARE BEING UNDERCUT BY FLOWS SHALL BE REPLACED IMMEDIATELY.
- SEDIMENT REMOVED SHALL BE DISPOSED OF IN AN AREA PREVIOUSLY APPROVED BY THE LOCAL AUTHORITIES AND OWNER. AT NO TIME SHALL SEDIMENT BE PLACED IN AN AREA THAT WILL CONTRIBUTE SEDIMENT OFF SITE AND IS NOT PERMANENTLY STABLE.

SILT FENCE (SF)

Erosion Protection Material Details

Scale: As Noted

| CHG | NUM | DESCRIPTION | APP/DATE |
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| REVISIONS | | | |

CAD DRAWING - DO NOT REVISE MANUALLY

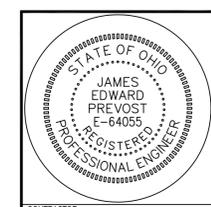
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

EROSION PROTECTION MISCELLANEOUS DETAILS

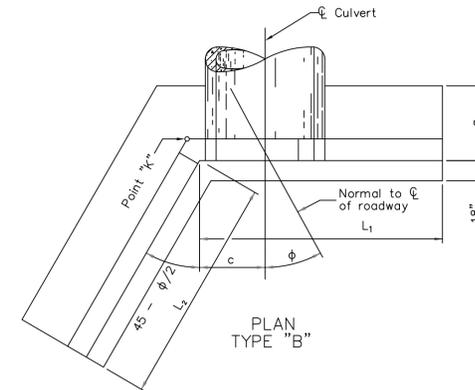
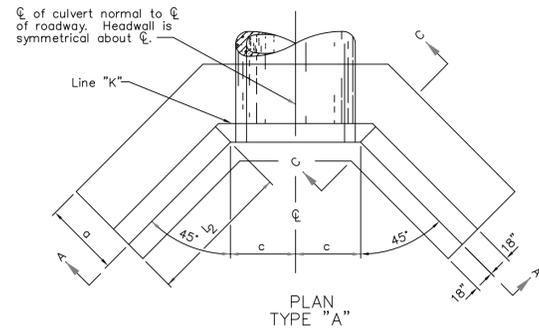
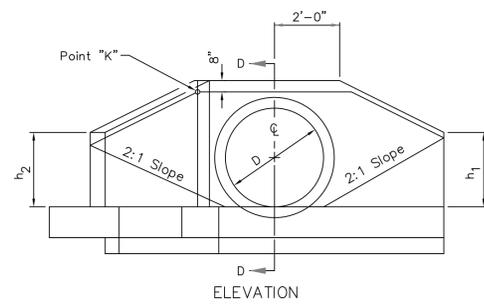
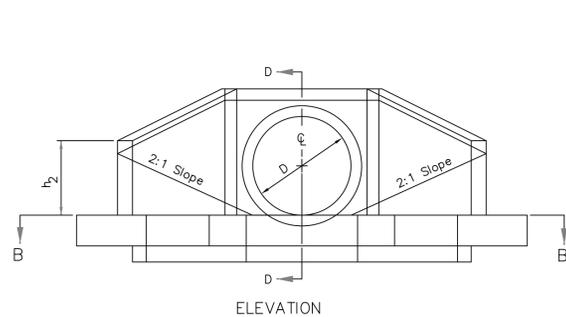
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CD STRM - COF20196 - C - 514

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UNITS: ENGLISH SOFTWARE: AUTOCAD 2012 REVISION VER
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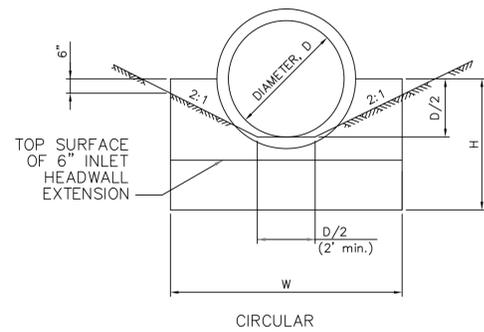


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| FOR BID - 01/29/2014 | | |
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| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| RELEASE APPROVAL: | DATE: | |
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| RELEASE STATUS: | | |

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|----------------------------|-------------------------|
| CONTRACTOR: BARR & PREVOST | CONTRACT NO: NNC09BA13B |
| TASK ORDER: NNC12TB09T | |
| DRAWN: RTF | DESIGNED: RJS |
| CHECKED: JEP | APPROVED DATE: |



FULL-HEIGHT HEADWALL DETAILS
NOT TO SCALE



CONCRETE PIPE
HALF-HEIGHT HEADWALL DETAILS
NOT TO SCALE

NOTES

APPLICATION: PROVIDE FULL HEIGHT HEADWALLS FOR SKEWED AND NON-SKEWED CULVERTS HAVING A DIAMETER OR RISE OF 42" TO 84" INCLUSIVE. USE TYPE "A" WHEN THE SKEW ANGLE (ϕ) IS TEN DEGREES OR LESS AND TYPE "B" WHEN THE SKEW ANGLE IS OVER TEN DEGREES.

CONCRETE: USE 4000 PSI COMPRESSIVE STRENGTH CONCRETE.

REINFORCING STEEL: PROVIDE EPOXY COATED #5 BARS.

DETAILS AND QUANTITIES: ARE SHOWN FOR CIRCULAR SECTIONS ONLY. WHEN USED WITH REINFORCED ELLIPTICAL CONCRETE PIPE OR CORRUGATED METAL PIPE ARCHES, ADJUST DIMENSIONS AND QUANTITIES TO CONFORM TO THOSE LISTED FOR THE NEAREST SIZE CIRCULAR PIPE. APPLY THE DIMENSIONS ESTABLISHED BY VERTICAL DIAMETER TO SPAN. ROUND ALL CALCULATED DIMENSIONS ESTABLISHED BY HORIZONTAL DIAMETER TO THE NEAREST 1". CHAMFER ALL EXPOSED CORNERS 3/4".

FOUNDATION: WHERE THE SOIL BORINGS INDICATE A BEARING CAPACITY OF LESS THAN 2,600 POUNDS PER SQUARE FOOT, INCREASE THE WIDTH OF THE FOOTING.

HEADWALL LOCATION: DETERMINE BY THE INTERSECTION OF THE EMBANKMENT SLOPE AT THE BACK OF THE HEADWALL AT POINT "K". PROVIDE 2:1 SLOPES ADJACENT TO THE HEADWALL.

NOTES

GENERAL: PROVIDE A RIPRAP REINFORCED CONCRETE SLAB ACCORDING TO ODOT SCD DM-1.1 IF THE PIPE IS DEPRESSED OR IT IS SPECIFIED IN THE PLAN. PAYMENT FOR THE SLAB IS MADE PER SQUARE YARD OF ITEM 601 RIPRAP USING 6" REINFORCED CONCRETE SLAB AND INCLUDES THE COST OF THE CUTOFF WALL.

THIS DRAWING IS FOR CAST IN PLACE HALF-HEIGHT CONCRETE HEADWALLS. WHEN FURNISHING PRECAST HALF-HEIGHT HEADWALLS, CONFORM TO PRE-APPROVED DESIGNS ON FILE WITH NASA. PRECAST HALF-HEIGHT HEADWALLS ARE ONLY APPROVED FOR ROUND CONDUITS WITH A MAXIMUM CONDUIT DIAMETER OF 78".

CONCRETE: USE 4000 PSI COMPRESSIVE STRENGTH CONCRETE FOR HEADWALLS. CONCRETE QUANTITIES ARE BASED ON HEADWALLS WITHOUT THE 6" EXTENSION UNDER THE CHANNEL PROTECTION.

- NOTES:
- SEE ODOT HW-1.1 AND HW-2.2 STANDARD DETAILS FOR COMPLETE DIMENSIONS AND REINFORCEMENT INFORMATION.
 - FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

| CHG | NUM | DESCRIPTION | APP/DATE |
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REVISIONS
CAD DRAWING - DO NOT REVISE MANUALLY

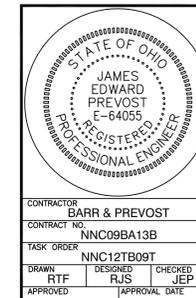
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

HEADWALL
MISCELLANEOUS DETAILS

SIZE: BLDG/SYS | PROJECT ID: | DISC: | TYP SEQ: |
CD STRM - COF20196 - C - 515

AREA: NASA GLENN RESEARCH CENTER | SHEET OF |
UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
SCALE: NONE | OFFICIAL DATE: 01/29/2014

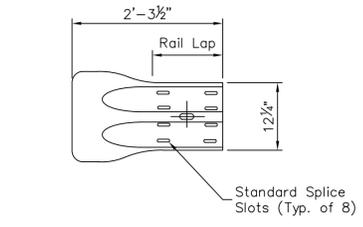
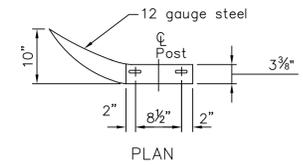


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| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
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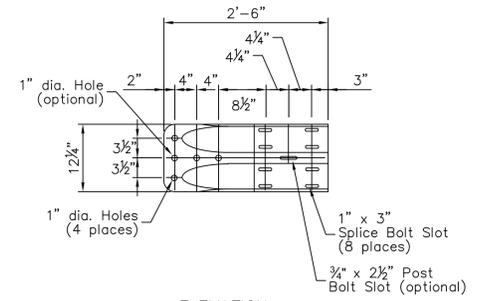
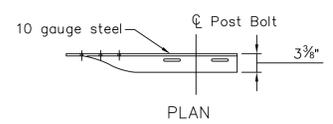
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| CONTRACTOR: BARR & PREVOST | CONTRACT NO: NNC09BA13B | TASK ORDER: NNC12TB09T |
| DRAWN: RTF | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: | APPROVAL DATE: | |

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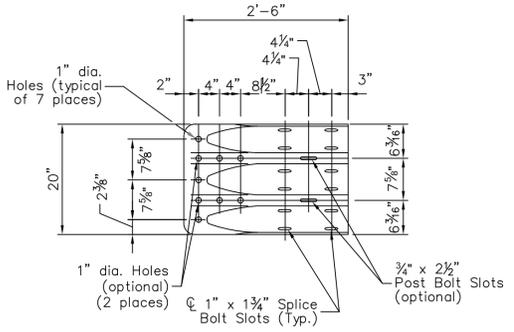
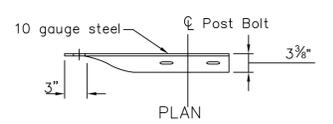
NOTES:
 1. REFER TO ODOT STD. DWG. MGS-1.1.
 2. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.



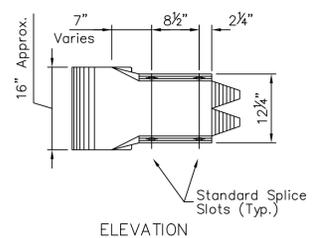
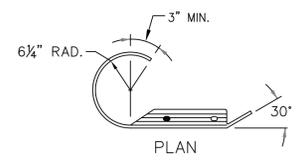
ELEVATION
W-BEAM FLARED END SECTION



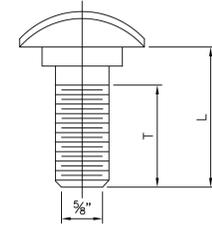
ELEVATION
W-BEAM TERMINAL CONNECTOR



ELEVATION
THRIE-BEAM TERMINAL CONNECTOR



ELEVATION
ROUNDED THRIE-BEAM END SECTION



NOTES

GENERAL: Components shown on this drawing are used in a variety of guardrail systems. See individual guardrail drawing for specific applications.

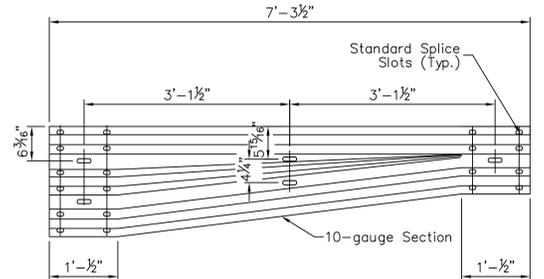
See ODOT CMS 606 for guardrail specifications not covered on these drawings.

Refer to AASHTO M 18012 for dimensional details of W-Beam and Thrie-Beam rail elements, related buffer and end sections, beam splices, post and splice bolts, nuts, and Type 1 W-Beam to Thrie-Beam Transition sections. Beam washers are not to be used. Bolts grade shall be ASTM A307.

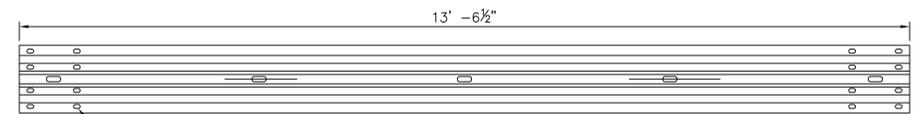
RAIL ELEMENTS: Unless otherwise specified, W-Beam Rail is 12 gauge steel with an effective length of 12'-6" or 25'-0", with 2 3/32" x 1 1/8" splice bolt slots, and 3/4" x 2 1/2" post bolt slots on 3'-1 1/2" centers regardless of post spacing. Field punch or drill bolt holes or slots for irregularly spaced posts as specified in ODOT CMS 606.04.

Substituting one 10 gauge steel beam element where two nested 12 gauge steel beams are specified is permitted (both W-beam and Thrie-beam).

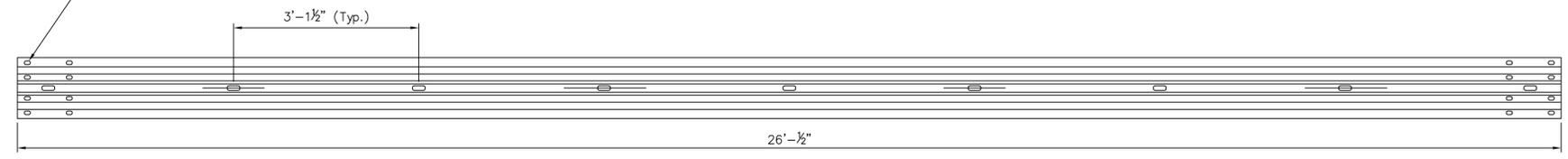
RAIL SPLICES: Lap splices between two rail elements or between a rail and terminal connector in the direction of traffic. Lap the flared end sections in the direction of traffic.



ASYMMETRIC TRANSITION SECTION
(W to Thrie-Beam)



12'-6" W-BEAM SECTION



25'-0" W-BEAM SECTION

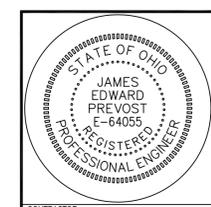
| GUARDRAIL BOLT (For Post and Splice Bolts) | | |
|---|--------|---------------------|
| L | T min. | Bolt Use |
| 22" (Standard Rail) | 4" | Type MGS: WP/WB, PB |
| 34" (Barrier Rail) | | Type MGS: SP/WB, PB |
| 14" | 4" | Type MGS: SP/WB, PB |
| 1 1/4" | 1 1/8" | Splice Bolt |

WP = Wood Post WB = Wood Blockout
 SP = Steel Post PB = Plastic Blockout

Longer Bolt may be needed for round Wood Post larger than 8" dia.

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |

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| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 GUARDRAIL MISCELLANEOUS DETAILS | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 516 | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: NONE | OFFICIAL DATE: 01/29/2014 | | |



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| DRAWING/DESIGN STATUS: FOR BID - 01/29/2014 | | |
| DRAWING MANAGEMENT | | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
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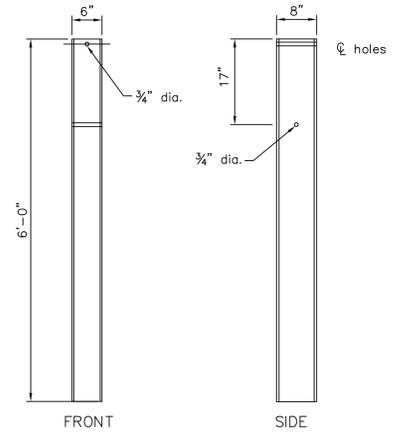
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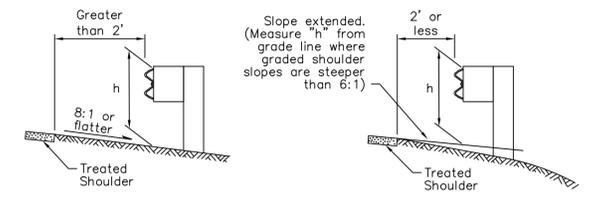
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- NOTES:
- REFER TO ODOT STD. DWG. MGS-1.1.
 - FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

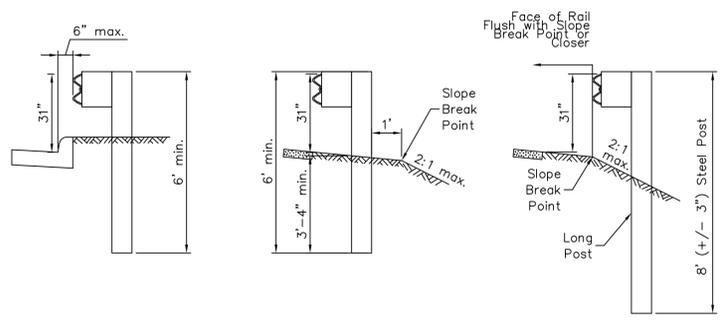
| STEEL BEAM POSTS | | | | |
|------------------|------------|--------------|------------------|---------------|
| Size | Beam depth | Flange width | Flange thickness | Web thickness |
| Rolled W6x8.5 | 5.8" | 3.94" | 0.193" | 0.170" |
| Rolled W6x9 | 5.9" | 3.94" | 0.215" | 0.170" |
| Welded 6x8.5 | 6.0" | 3.94" | 0.193" | 0.170" |
| Welded 6x9 | 6.0" | 3.94" | 0.215" | 0.170" |



STEEL GROUND FOUNDATION TUBE



MEASURING GUARDRAIL HEIGHT



GUARDRAIL POST LENGTH AND POSITION

NOTES

GUARDRAIL HEIGHT: For initial installation, construct the guardrail within $\pm 1"$ of the standard 31" height to the top of W-Beam rail.

When subsequent projects, such as resurfacings, affect the height of existing guardrail, adjustment is not required if the finished height is within $\pm 3"$ of the standard height.

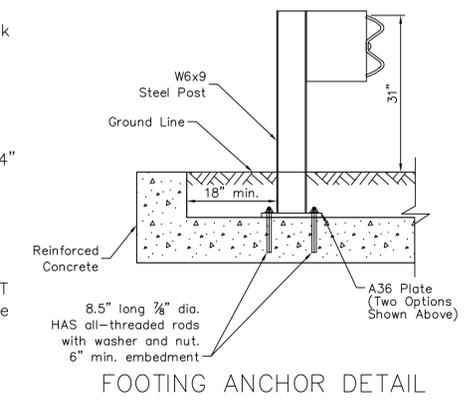
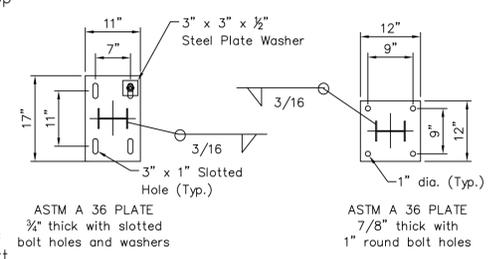
POSTS: The Standard Post Length is 6'-0" (+3", -0" tolerance), and shall be Standard Steel Posts per ODOT CMS 710.11.

POST EMBEDMENT DEPTH: Standard embedment depth is 3'-4" minimum. Do not drive posts located over a culvert with less than 4'-3" of cover; instead set in drilled or dug holes. Where site constraints prohibit the post from being placed at least one foot in front of the slope break point, use longer posts as shown in the Guardrail Post Length and Position Detail. The face of the rail may not be beyond the slope break point.

SPECIAL POST MOUNTINGS: Install posts located over a drainage inlet or structure with a cover of less than 3'-4" as shown in the FOOTING ANCHOR Detail.

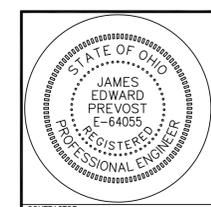
ANCHORS: Holes shall comply with ODOT CMS 510. Use non-shrink, nonmetallic grout per ODOT CMS 705.20.

PROTECTIVE COATING: In lieu of the complying with ODOT CMS 710.06, coat expansion shields, anchors and concrete insert anchor assemblies embedded in concrete in accordance with ASTM A 153 or be of stainless steel. Any bolts screwed into these devices shall meet ODOT CMS 710.06.



FOOTING ANCHOR DETAIL

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
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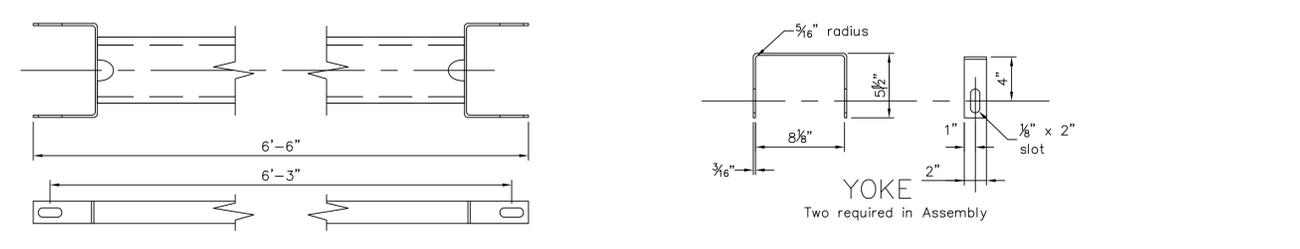
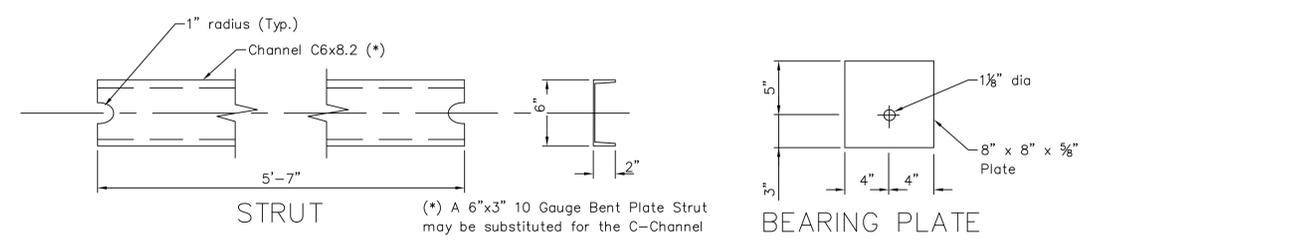
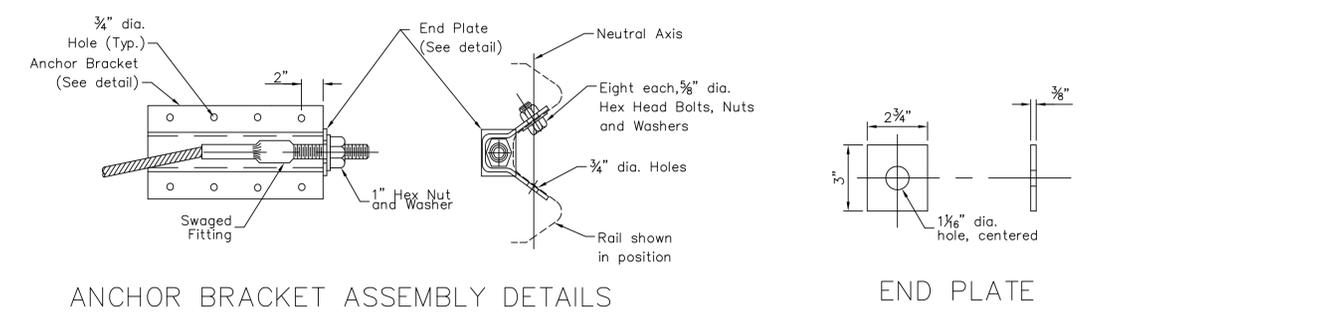
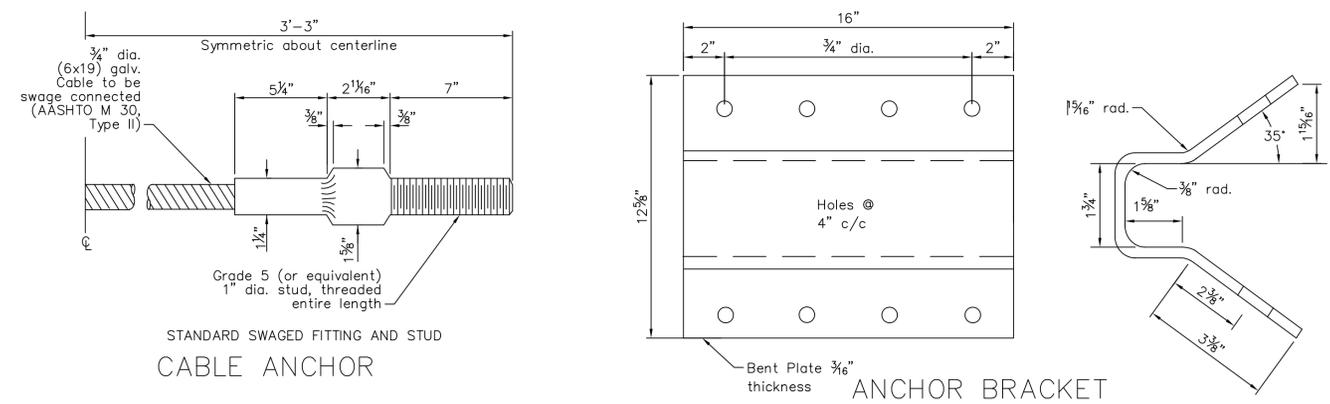


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| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| GUARDRAIL MISCELLANEOUS DETAILS | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 517 | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
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NOTES:
 1. REFER TO ODOT STD. DWG. MGS-1.1.
 2. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.



Channel legs shown down. For opposite hand, install Channel legs up.

STRUT AND YOKE ASSEMBLY

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
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FOR BID - 01/29/2014

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NASA APPROVALS
 DR: | DES: |
 D.ENG: | PROJ. MGR: J. SCHULTZ

CONTRACTOR: BARR & PREVOST
 CONTRACT NO: NNC09BA13B
 TASK ORDER: NNC12TB09T

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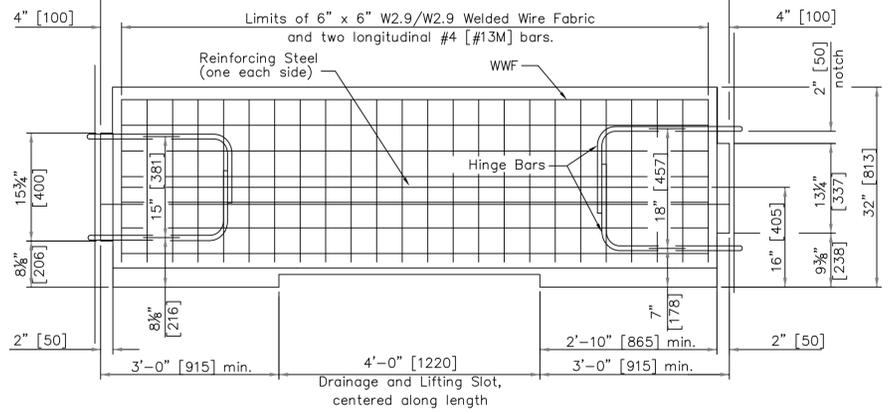
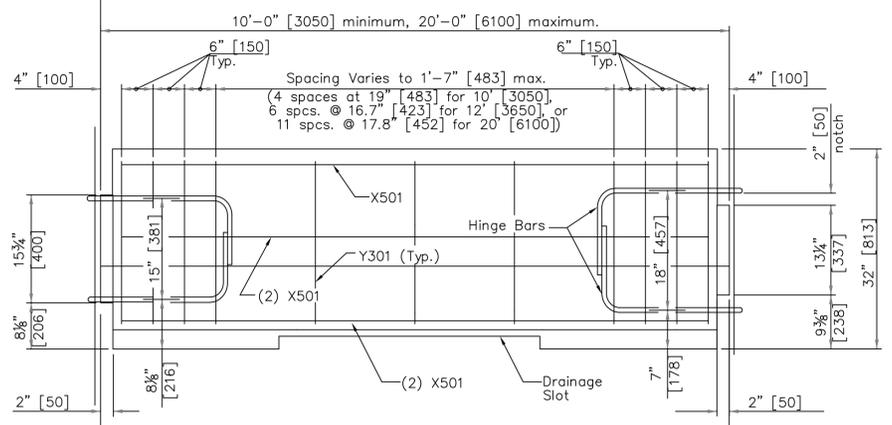
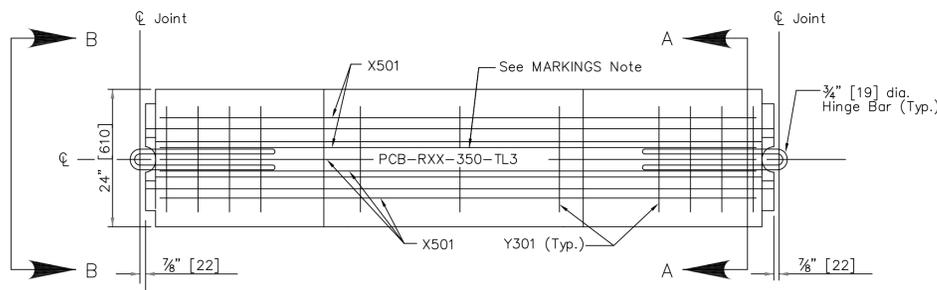
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JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

GUARD RAIL
MISCELLANEOUS DETAILS

| | | | | |
|----------------------------------|---------------------------|------------------|------|---------|
| SIZE | BLDG/SYS | PROJECT ID | DISC | TYP SEQ |
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- NOTES:
1. REFER TO ODOT STD. DWG. RM-4.2.
 2. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.



32" [813] BARRIER SECTION

NOTES

GENERAL: This barrier may be manufactured with reinforcing steel or with welded wire fabric as shown in the ELEVATION and SECTION A-A details. See ODOT CMS 622 for additional information. The minimum design strength of the concrete is 4,000 psi and meets the requirements of ODOT CMS 499.

PORTABLE CONCRETE BARRIER (PCB): Do not use the PCB detailed here on bridge deck edges, or similar dropoffs. PCB, Bridge Mounted, shown on ODOT SCD PCB-91 shall be used at those locations in accordance with the PCBDD Design Data Sheet.

HINGE AND REINFORCING BARS: Use ASTM A 36 for the 3/4" [19] hinge bars. Use rebars meeting the requirements of ODOT CMS 509 (ASTM A 615 Grade 60). Wire mesh shall meet ODOT CMS 709.10. Black steel is permitted.

CONNECTING HARDWARE: Bolts, washers and hex nuts are to be galvanized after fabrication per ODOT CMS 711.02 and meet the requirements of ODOT CMS 711.09 except that the Rotational Capacity test specified in ASTM A 325 shall be waived.

ALTERNATE BARRIER: In lieu of the pin and loop connections detailed on this SCD, barrier sections with "J-J Hooks" end connections may be utilized. Connect runs of J-J Hooks barriers to other permitted barrier type by use a Transition barrier section with pin and loop connections on one end and "J-J Hooks" on the other. The heights of the transition sections shall be the same as the barrier runs being connected. "J-J Hooks" is a trademark of Easi-Set Industries, P.O. Box 300, Midland, VA 22728, (540) 439-8911 or (800) 547-4045.

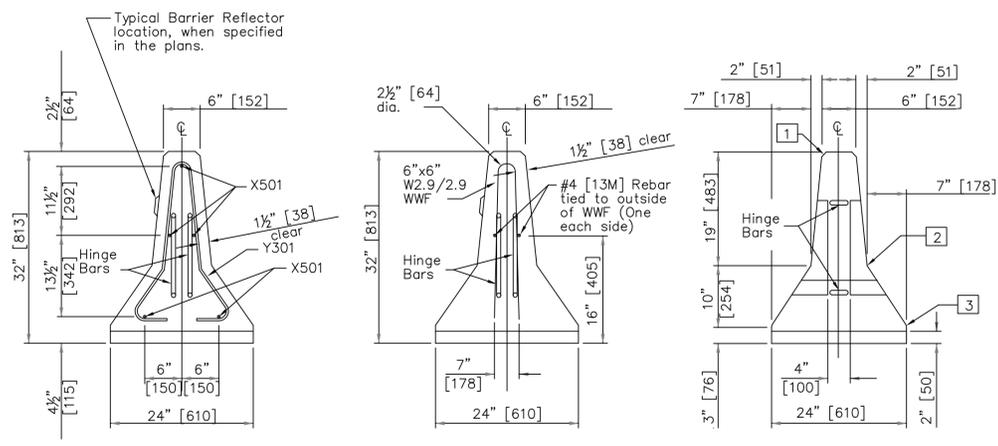
HANDLING DEVICES: Such devices may be used in lieu of the lifting slot for moving the barrier. They may be of any design sufficient to safely handle the weight of the section being lifted. No handling devices shall protrude from the surface of the barrier when in place.

MARKINGS: All barrier segments are to be marked on the top, as shown, where XX indicates the year cast. If the barrier is cast using welded wire fabric instead of the rebar, add "WWF" to the end of the notation. Permanently impress these markings in the barrier using a minimum of 2" [50] high lettering. The tapered end section is not required to be marked.

On the top of each barrier segment, including tapered end sections, permanently mark a unique identification as to its manufacturer. And somewhere on the barrier, permanently mark the day and month the barrier was manufactured.

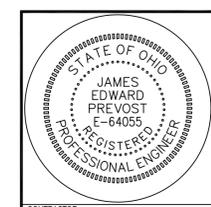
REFLECTORIZATION: Install barrier reflectors in accordance with ODOT SCD MT-101.70 when specified in the plans.

- LEGEND**
- 1 1" [25] radius or 3/4" [19] chamfer, all top and end corners.
 - 2 Permissible 10" [250] radius.
 - 3 Permissible 1" [25] radius.



Vertical edges on Lifting Slot may be battered. Depth 2" [50].

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |



DRAWING/DESIGN STATUS:
FOR BID - 01/29/2014

DRAWING MANAGEMENT
SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS

NASA APPROVALS

DR: | DES: |
D.ENG: | PROJ. MGR: J. SCHULTZ

RELEASE APPROVAL: | DATE: |
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RELEASE STATUS: |

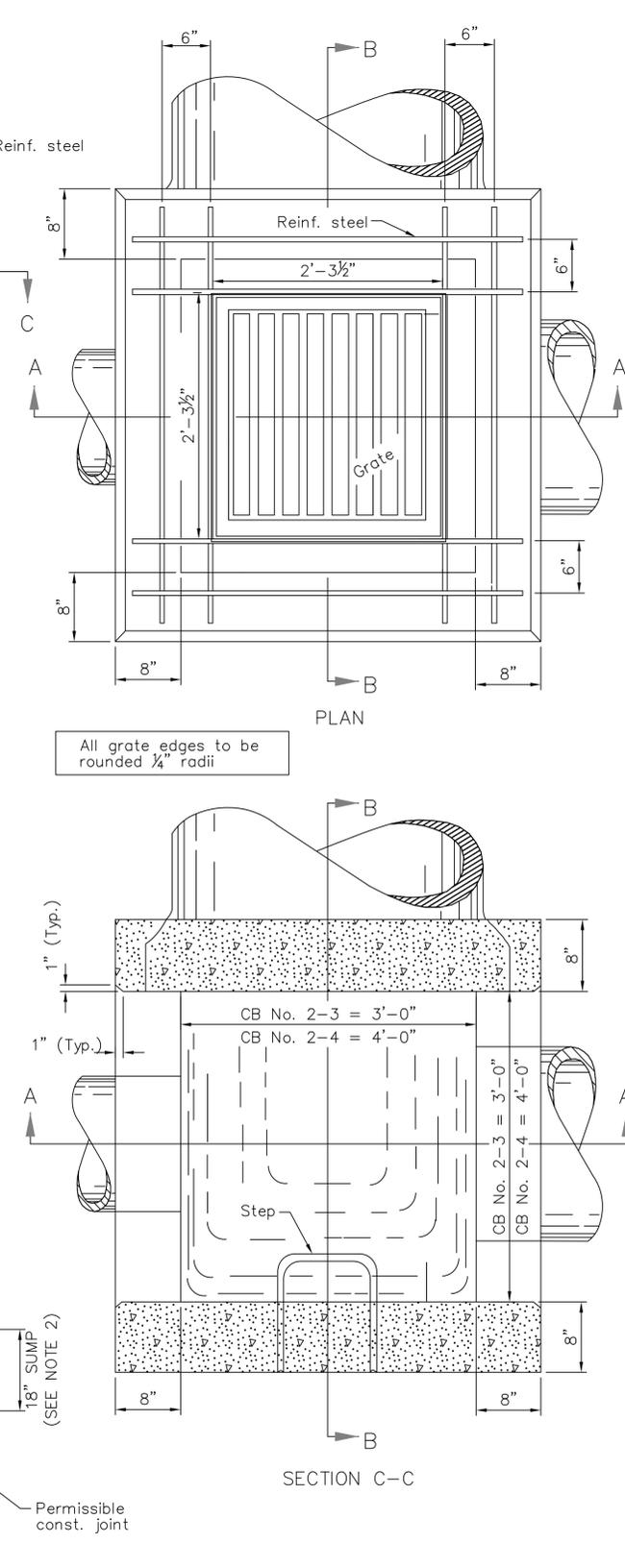
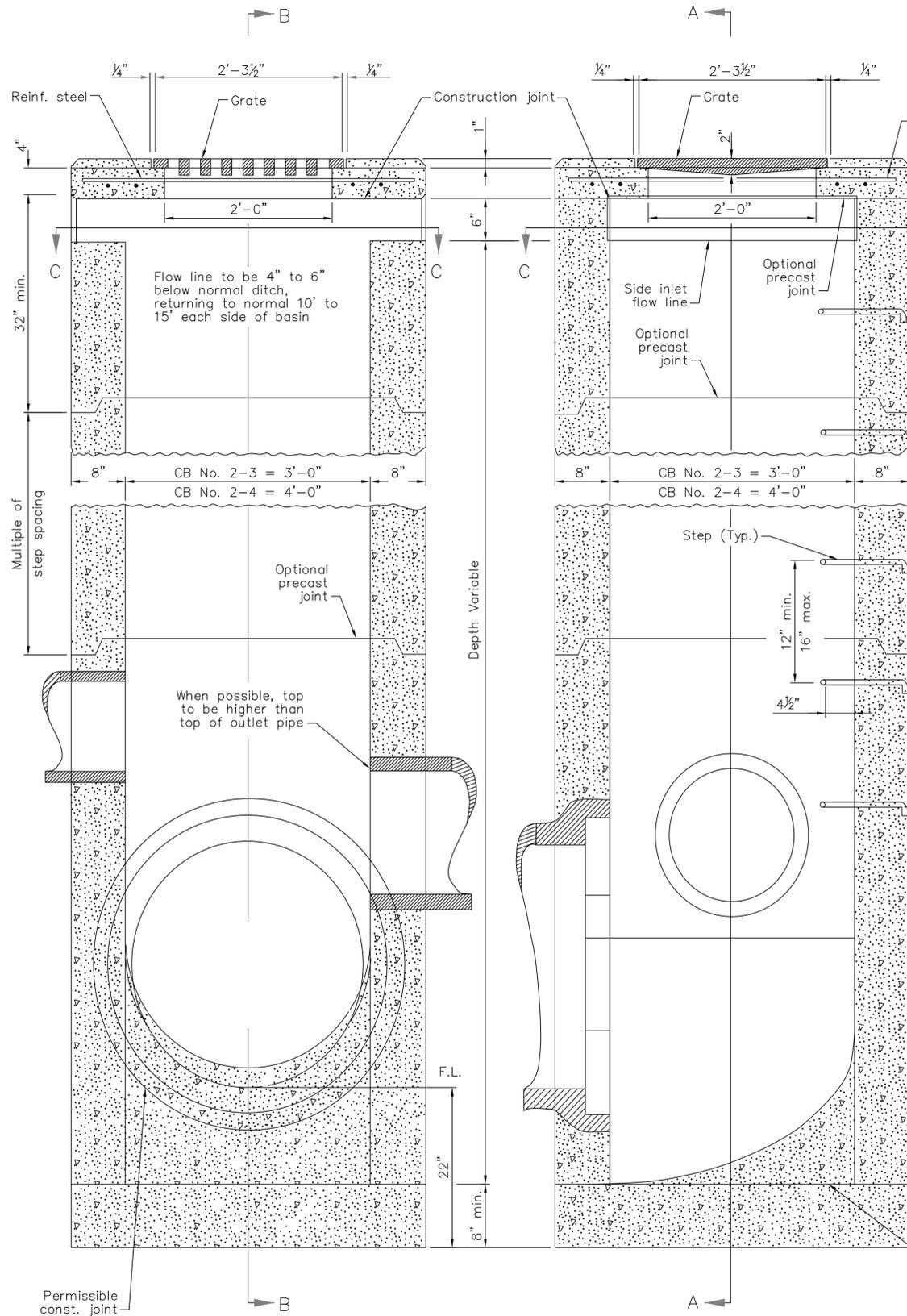
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

PORTABLE CONCRETE BARRIER
MISCELLANEOUS DETAILS

| | | | | |
|----------------------------------|---------------------------|------------------|-------|---------|
| SIZE | BLDG/SYS | PROJECT ID | DISCP | TYP SEQ |
| CD STRM - COF20196 | | - C - 519 | | |
| AREA: NASA GLENN RESEARCH CENTER | SHEET | OF | | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER | |
| SCALE: NONE | OFFICIAL DATE: 01/29/2014 | | | |

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NOTES

GRATE: See details on ODOT SCD CB-1.1.

If necessary, bicycle safe grates will be specified in the plans. Furnish Neenah No. R-4859-C or East Jordan No. 5110 Type M3 bicycle safe grates or approved equals.

Cast the following text into the top of the grate:
"DUMP NO WASTE" and "DRAINS TO WATERWAY"

Print text in bold, capital letters at least 1/2" high. "WATERWAY" may be substituted with "STREAM", "RIVER", "LAKE", etc. Actual placement and logo may vary per manufacturer.

WALLS: Construct brick or cast-in-place walls with a nominal 8" thickness. Provide precast walls at least 6" thick with sufficient reinforcing to permit shipping and handling without damage.

STEPS: Provide steps where the depth exceeds 6'. Meet the requirements of ODOT SCD MH-1.1.

CONCRETE: Use 4000 psi compressive strength for cast-in-place concrete. Meet the requirements of ODOT CMS 706.13 for all precast concrete and mark with the catch basin number.

REINFORCEMENT: Provide #4 bars spaced at 6" center to center for top reinforcing. For Catch Basin No. 2-3 use eight bars, and for Catch Basin No. 2-4 use twelve bars.

INLETS OVER 12 FEET DEEP: Use precast or cast-in-place concrete; reinforce with #4 bars on 12" centers both vertically and horizontally with 2" clearance from inside wall face.

PRECAST BASE: If a precast base is used, set it deep enough so that the top can be placed on the base to provide the grate elevation specified in the plans. Do not use brick layers to adjust the top elevation.

LOCATION AND ELEVATION: When given on the plans, the location and the elevation are at the top center of the grate. When side openings are provided, the elevation is at the flow line of the side inlet.

MINIMUM DEPTH: The minimum depth of CB No. 2-3 and CB No. 2-4 is the outside diameter (O.D.) of the outlet pipe plus 7".

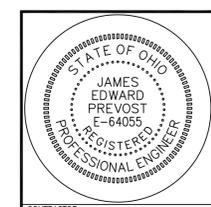
OPENINGS: Obtain the Engineer's approval for any pipe openings greater than 4" from the outside of the pipe to the structure. Fill all voids per ODOT CMS 611.

SIDE INLETS: Provide inlets on both sides of the No. 2-3 and 2-4 catch basin in sags and on upstream side only where the ditch has a continuous down grade past the catch basin. Do not use catch basins with side inlets within the Clear Zone.

| CATCH BASIN | OUTLET PIPE SIZE |
|-------------|------------------|
| 2-3 | 12" to 33" |
| 2-4 | 36" to 42" |

- NOTES:**
- REFER TO ODOT STD. DWG. CB-1.2.
 - SEE STORM SEWER PROFILES FOR LOCATIONS OF PROPOSED CATCH BASINS REQUIRING 18" SUMP.
 - REFER TO ODOT STD. DWG. CB-1.1 FOR GRATE INFORMATION
 - FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

CATCH BASINS NO. 2-3 & NO. 2-4



DRAWING/DESIGN STATUS:
FOR BID - 01/29/2014

DRAWING MANAGEMENT

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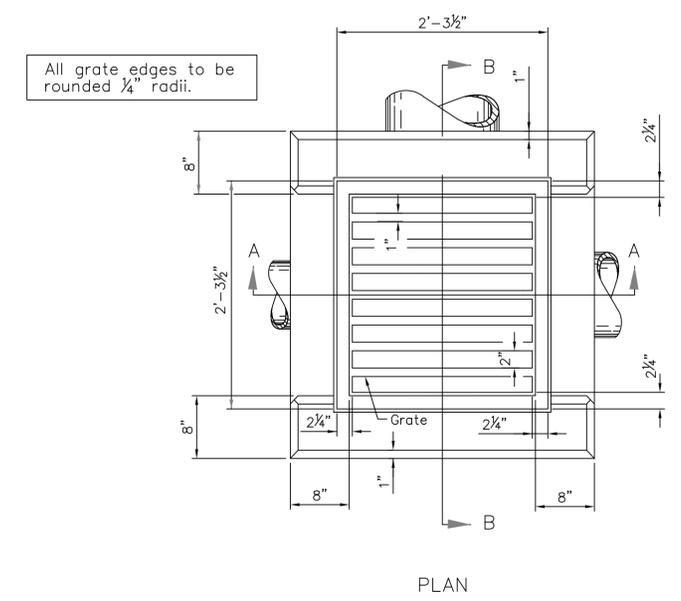
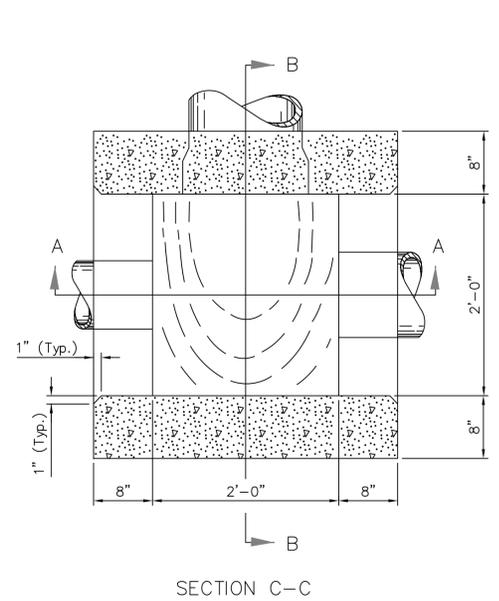
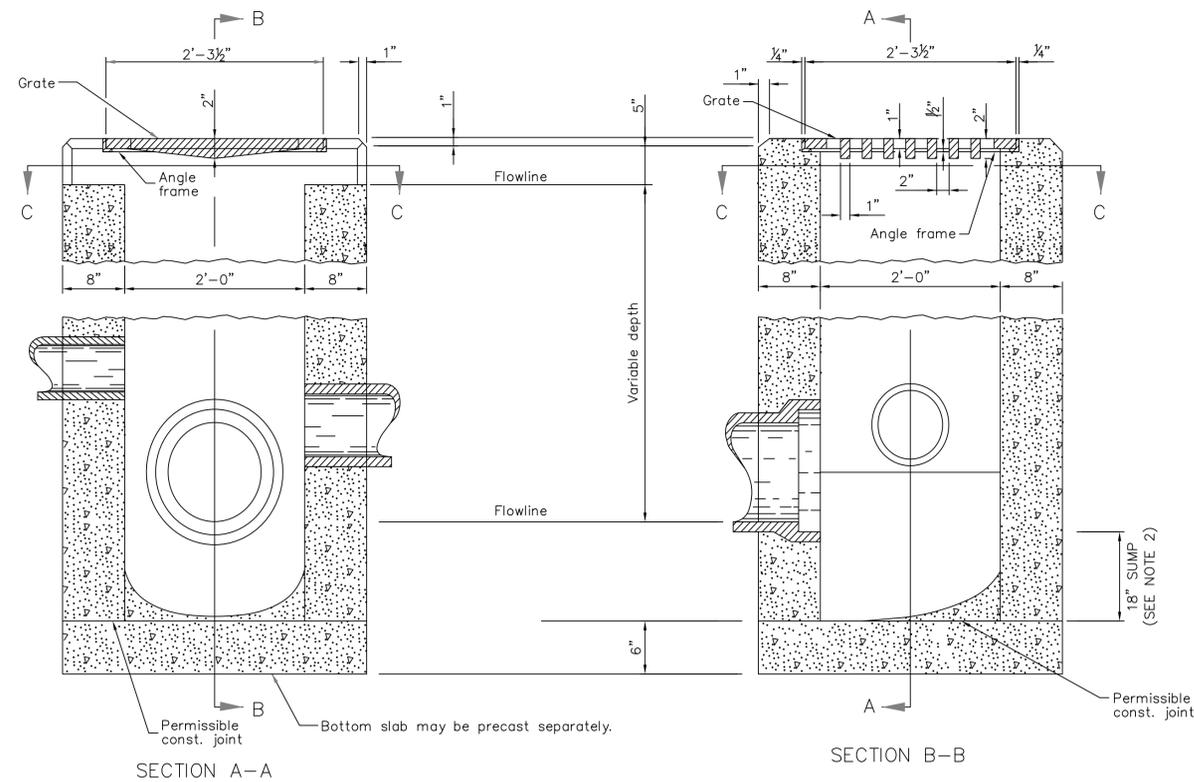
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| DR: | DES: |
| D.ENG: | PROJ. MGR: J. SCHULTZ |

CONTRACTOR: BARR & PREVOST
 CONTRACT NO.: NNC09BA13B
 TASK ORDER: NNC12TB09T

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| DRAWN: RTF | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: | APPROVAL DATE: | RELEASE STATUS: |

| CHG | NUM | DESCRIPTION | APP/DATE |
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| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| CATCH BASIN MISCELLANEOUS DETAILS | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 520 | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET | OF |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: NONE | OFFICIAL DATE: 01/29/2014 | | |

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NOTES

GENERAL: Catch Basins 2-2A and 2-2B are not intended for traffic bearing applications.

CATCH BASINS 2-2A & B: This sheet depicts Catch Basin 2-2A. See Sheet C-522 for Catch Basin 2-2B.

GRATE AND FRAME: Furnish a design essentially the same and equally as strong as the one shown (see Construction Information table), or meet the requirements of ODOT CMS 711.14. Provide grate openings and dimensions as shown here unless otherwise shown in the plans.

Cast the following text into the top of the grate:
"DUMP NO WASTE" and "DRAINS TO WATERWAY"

Print text in bold, capital letters at least 1/2" high. "WATERWAY" may be substituted with "STREAM", "RIVER", "LAKE", etc. Actual placement and logo may vary per manufacturer.

WALLS: Construct brick or cast-in-place walls with a nominal 8" thickness. Provide precast walls at least 6" thick with sufficient reinforcing to permit shipping and handling without damage. Do not use brick above the flow line of the side opening for Type 2-2A.

CONCRETE: Use 4000 psi compressive strength for cast-in-place concrete. Meet the requirements of ODOT CMS 706.13 for all precast concrete and mark with the catch basin number.

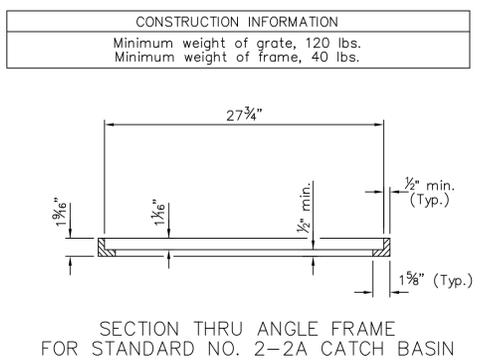
PRECAST BASE: If a precast base is used, set it deep enough so that the top can be placed on the base to provide the grate elevation specified in the plans. Do not use brick layers to adjust the top elevation.

LOCATION AND ELEVATION: When given on the plans, location is the top center of the grate and the elevation is the flow line of the side inlet.

MINIMUM DEPTH: The minimum depth of CB No. 2-2A is the outside diameter (O.D.) of the outlet pipe plus 7".

OPENINGS: Obtain the Engineer's approval for any pipe openings greater than 4" from the outside of the pipe to the structure. Fill any voids per ODOT CMS 611.

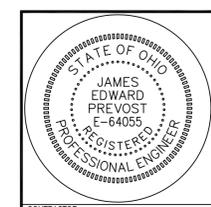
2-2A SIDE INLETS: Provide inlets on both sides of the No. 2-2A catch basin in sags and on upstream side only where the ditch has a continuous down grade past the catch basin. Do not use CB 2-2A within the Clear Zone. The flow line should be 4" to 6" below normal ditch returning to normal 10' to 15' each side of the inlet.



CATCH BASIN NO. 2-2A

- NOTES:**
- REFER TO ODOT STD. DWG. CB-1.1.
 - SEE STORM SEWER PROFILES FOR LOCATION OF PROPOSED CATCH BASINS REQUIRING 18" SUMP.
 - FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

| CHG | NUM | DESCRIPTION | APP/DATE |
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| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| CATCH BASIN MISCELLANEOUS DETAILS | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
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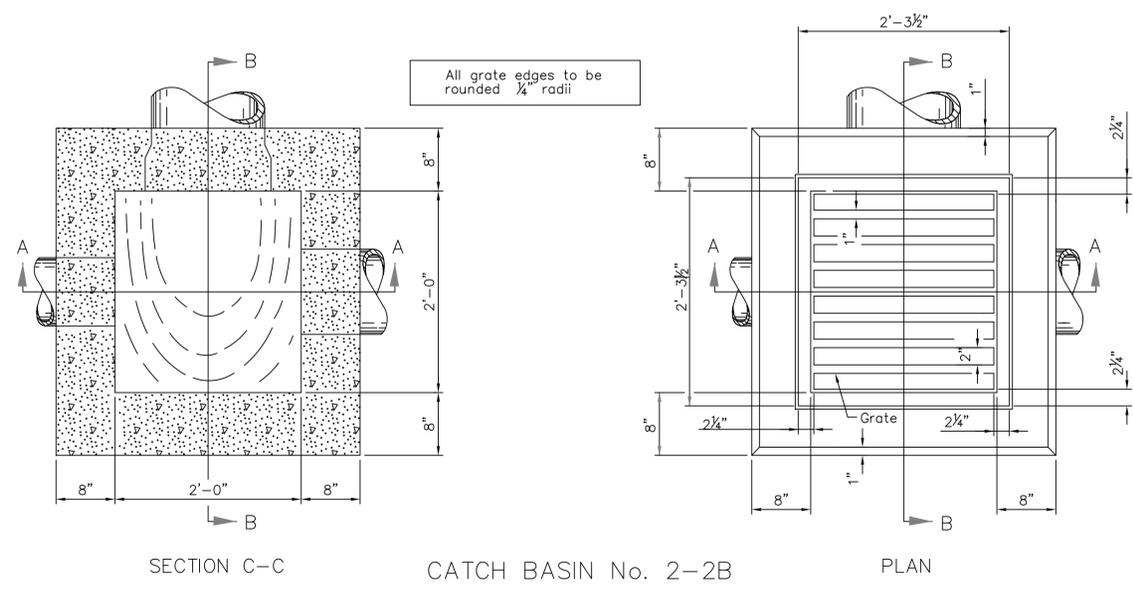
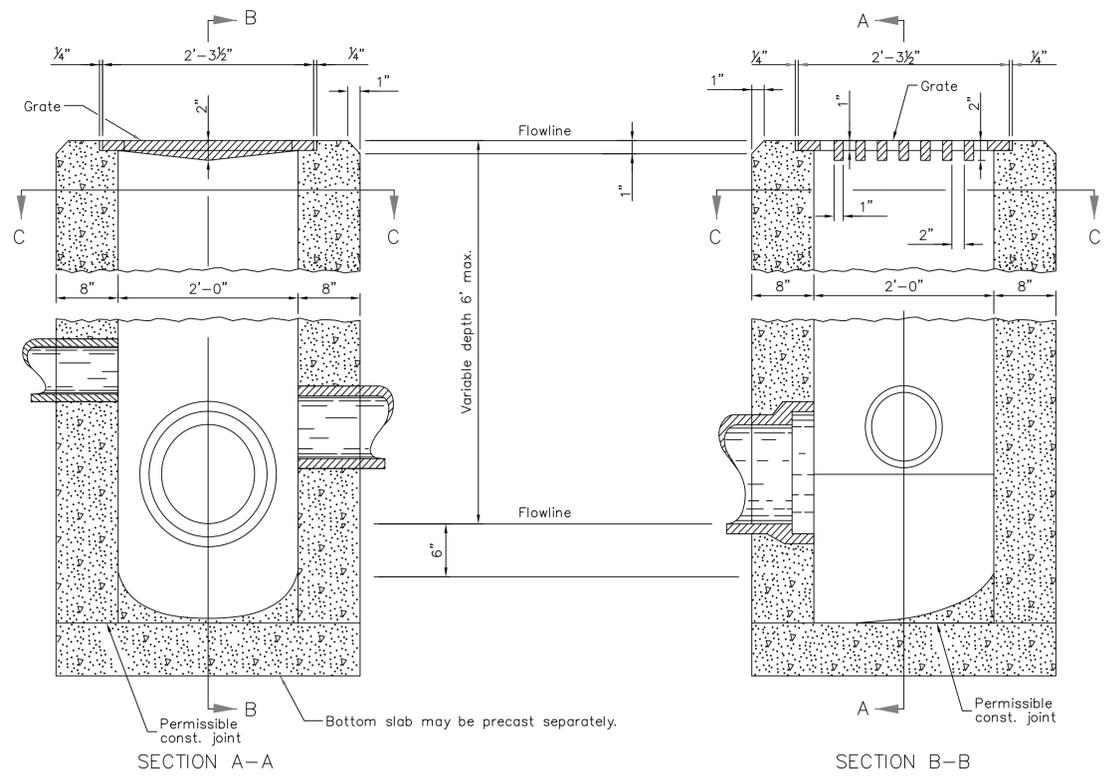


DRAWING/DESIGN STATUS:
FOR BID - 01/29/2014

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| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| RELEASE APPROVAL: | DATE: | |
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| CONTRACTOR: BARR & PREVOST | CONTRACT NO: NNC09BA13B |
| TASK ORDER: NNC12TB09T | |
| DRAWN: RTF | DESIGNED: RJS |
| CHECKED: JEP | APPROVED: [Signature] |
| APPROVAL DATE: | |

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NOTES

CATCH BASINS 2-2A & B: This sheet depicts Catch Basin 2-2B. See Sheet C-521 for Catch Basin 2-2A.

GRATE: Furnish a design essentially the same and equally as strong as the one shown (see Construction Information table), or meet the requirements of ODOT CMS 711.14. Provide grate openings and dimensions as shown here unless otherwise shown in the plans.

If necessary, bicycle safe grates will be specified in the plans. Furnish Neenah No. R-4859-C or East Jordan No. 5110 Type M3 bicycle safe grates or approved equals.

Cast the following text into the top of the grate:
 "DRAINS TO WATERWAY" and "DUMP NO WASTE"

Print text in bold, capital letters at least 1/2" high. "WATERWAY" may be substituted with "STREAM", "RIVER", "LAKE", etc. Actual placement and logo may vary per manufacturer.

WALLS: Construct brick or cast-in-place walls with a nominal 8" thickness. Provide precast walls at least 6" thick with sufficient reinforcing to permit shipping and handling without damage.

CONCRETE: Use 4000 psi compressive strength for cast-in-place concrete. Meet the requirements of ODOT CMS 706.13 for all precast concrete and mark with the catch basin number.

PRECAST BASE: If a precast base is used, set it deep enough so that the top can be placed on the base to provide the grate elevation specified in the plans. Do not use brick layers to adjust the top elevation.

LOCATION AND ELEVATION: When given on the plans, location and elevation are at the top center of the grate. When side openings are provided, the elevation is at the flow line of the side inlet.

MINIMUM DEPTH: The minimum depth of CB No. 2-2B is the outside diameter (O.D.) of the outlet pipe plus 4".

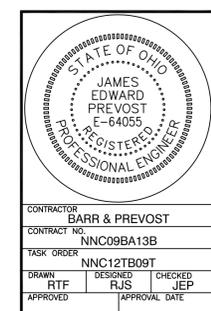
2-2B GRATE ELEVATION: Place grate elevation 4" to 6" below normal ditch and return to normal 10' to 15' each side of inlet.

OPENINGS: Obtain the Engineer's approval for any pipe openings greater than 4" from the outside of the pipe to the structure. Fill all voids per ODOT CMS 611

| CONSTRUCTION INFORMATION | |
|-----------------------------------|------------------|
| Minimum weight of grate, 120 lbs. | |
| CATCH BASIN | OUTLET PIPE SIZE |
| 2-2A | 12" to 21" |
| 2-2B | 12" to 21" |

- NOTES:**
- REFER TO ODOT STD. DWG. CB-1.1.
 - SEE STORM SEWER PROFILES FOR LOCATIONS OF PROPOSED CATCH BASINS REQUIRING 18" SUMP.
 - FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

| CHG | NUM | DESCRIPTION | APP/DATE |
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| FOR BID - 01/29/2014 | | |
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| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
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| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| CATCH BASIN MISCELLANEOUS DETAILS | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 522 | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
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HEAVY DUTY DUCTILE IRON FRAME AND COVER IN ACCORDANCE WITH SPECIFICATIONS WITH "STORM" CAST IN LID AND TWO PICK HOLES -OR- ROUND GRATE AS SPECIFIED IN INSTALLATION SCHEDULE. EJIW 1044 OR EQUAL.

MIN. 4" TO MAX. 16" CONC. GRADE RINGS

FIN. GRADE ELEV PER GRADING PLAN

NON-SHRINK HYDRAULIC CEMENT

ECCENTRIC CONE

ODOT 706.13

PRECAST SECTION SHALL CONFORM TO ASTM C-478, 5" MIN. THICKNESS

JOINT SHALL CONFORM TO ASTM C-443 (SHALL BE WATER TIGHT)

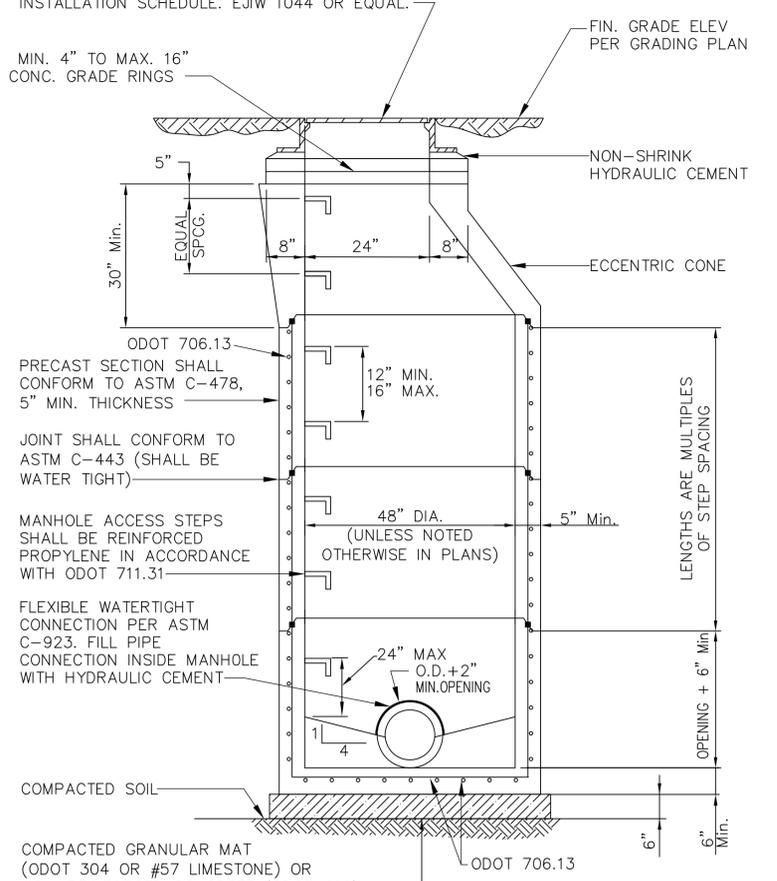
MANHOLE ACCESS STEPS SHALL BE REINFORCED PROPYLENE IN ACCORDANCE WITH ODOT 711.31

FLEXIBLE WATERTIGHT CONNECTION PER ASTM C-923. FILL PIPE CONNECTION INSIDE MANHOLE WITH HYDRAULIC CEMENT

COMPACTED SOIL

COMPACTED GRANULAR MAT (ODOT 304 OR #57 LIMESTONE) OR NON-REINFORCED CONCRETE (ODOT 499)

HANDLING HOLES MAY BE CAST IN SECTIONS AND WILL BE FILLED WITH NON-SHRINK/ NON-CORROSIVE HYDRAULIC CEMENT AFTER SECTIONS ARE IN PLACE. CONCRETE FOR THE MANHOLE BASE TOGETHER WITH FILL CONCRETE SHALL BE CLASS 'C'. STORM MANHOLES TO BE PRECAST TYPE ONLY.



**STORM SEWER MANHOLE
DETAIL STRM-MH-1**

Not to Scale

HEAVY DUTY DUCTILE IRON FRAME AND COVER IN ACCORDANCE WITH SPECIFICATION WITH "STORM" CAST IN LID AND TWO PICK HOLES -OR- ROUND GRATE AS SPECIFIED IN INSTALLATION SCHEDULE. EJIW 1044 OR EQUAL.

MIN. 4" TO MAX. 16" CONC. GRADE RINGS

FIN. GRADE ELEV PER GRADING PLAN

NON-SHRINK HYDRAULIC CEMENT

ECCENTRIC CONE

ODOT 706.13

PRECAST SECTION SHALL CONFORM TO ASTM C-478, 5" MIN. THICKNESS

JOINT SHALL CONFORM TO ASTM C-443 (SHALL BE WATER TIGHT)

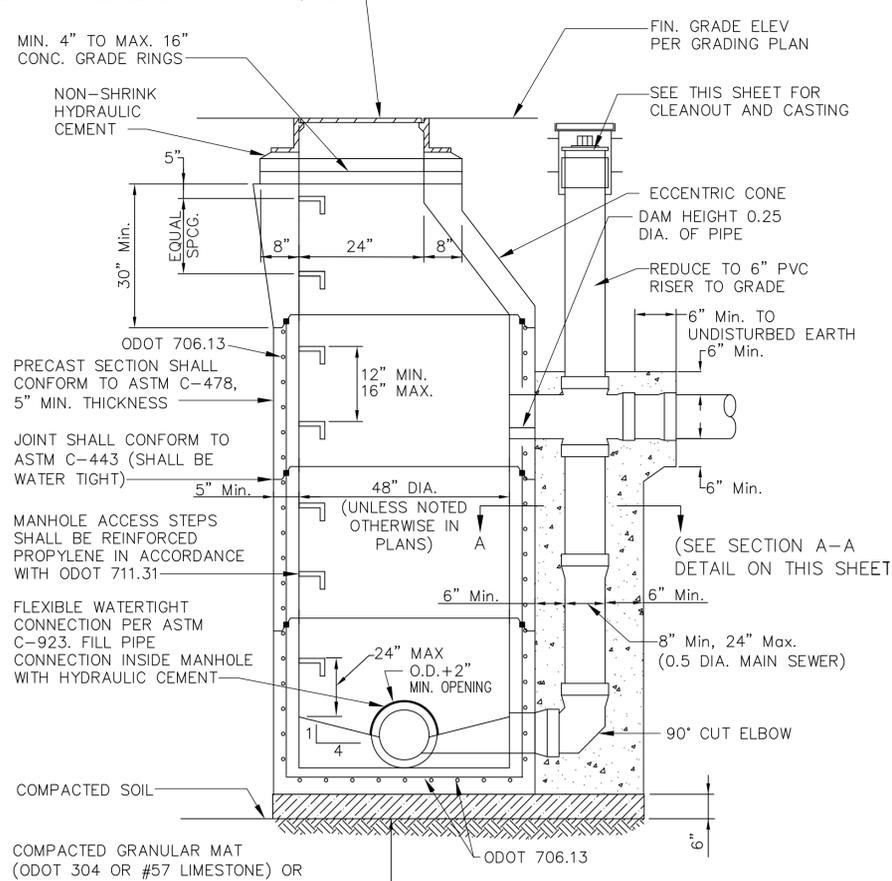
MANHOLE ACCESS STEPS SHALL BE REINFORCED PROPYLENE IN ACCORDANCE WITH ODOT 711.31

FLEXIBLE WATERTIGHT CONNECTION PER ASTM C-923. FILL PIPE CONNECTION INSIDE MANHOLE WITH HYDRAULIC CEMENT

COMPACTED SOIL

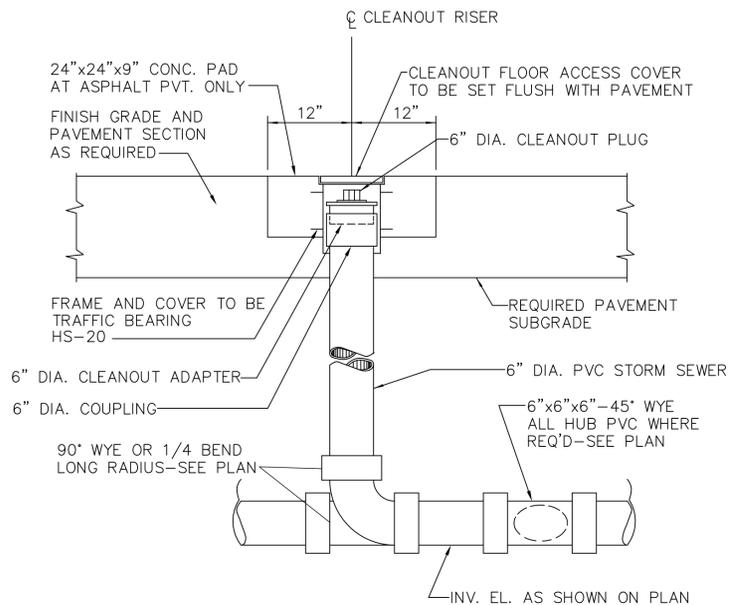
COMPACTED GRANULAR MAT (ODOT 304 OR #57 LIMESTONE) OR NON-REINFORCED CONCRETE (ODOT 499)

HANDLING HOLES MAY BE CAST IN SECTIONS AND WILL BE FILLED WITH NON-SHRINK/ NON-CORROSIVE HYDRAULIC CEMENT AFTER SECTIONS ARE IN PLACE. CONCRETE FOR THE MANHOLE BASE TOGETHER WITH FILL CONCRETE SHALL BE CLASS 'C'. STORM MANHOLES TO BE PRECAST TYPE ONLY.



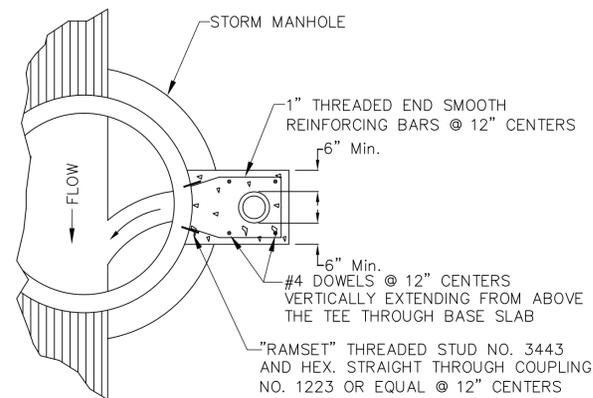
**STORM SEWER DROP MANHOLE
DETAIL STRM-MH-2**

Not to Scale



**STORM SEWER CLEANOUT
SECTION STRM-CO-1**

Not to Scale



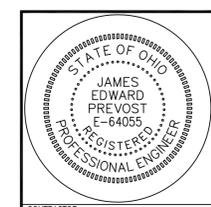
NOTE: CAST IN PLACE CONCRETE SHALL BE 3000# CONCRETE.

**STORM SEWER DROP DETAIL
SECTION A-A - STRM-MH-2.1**

Not to Scale

NOTES:
1. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

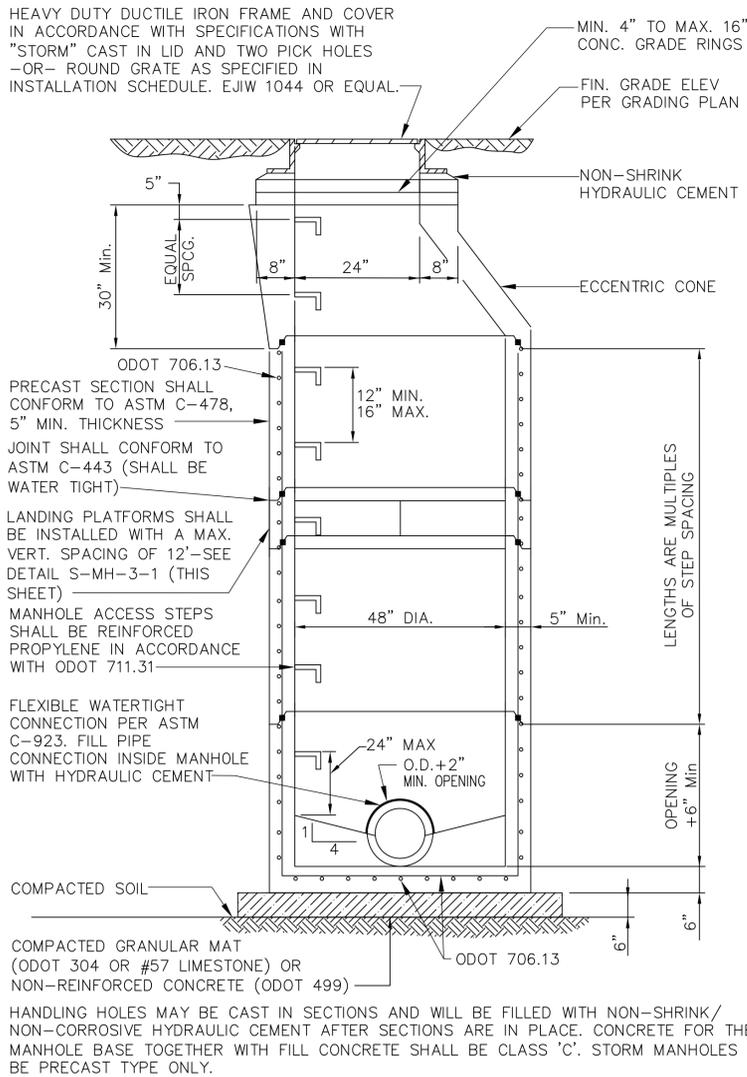
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| REVISIONS | | | |
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| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| STORM MANHOLE MISCELLANEOUS DETAILS | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 523 | |
| AREA: NASA GLENN RESEARCH CENTER | SHEET | OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: NONE | OFFICIAL DATE: 01/29/2014 | | |



| DRAWING/DESIGN STATUS: | | |
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| FOR BID - 01/29/2014 | | |
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| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
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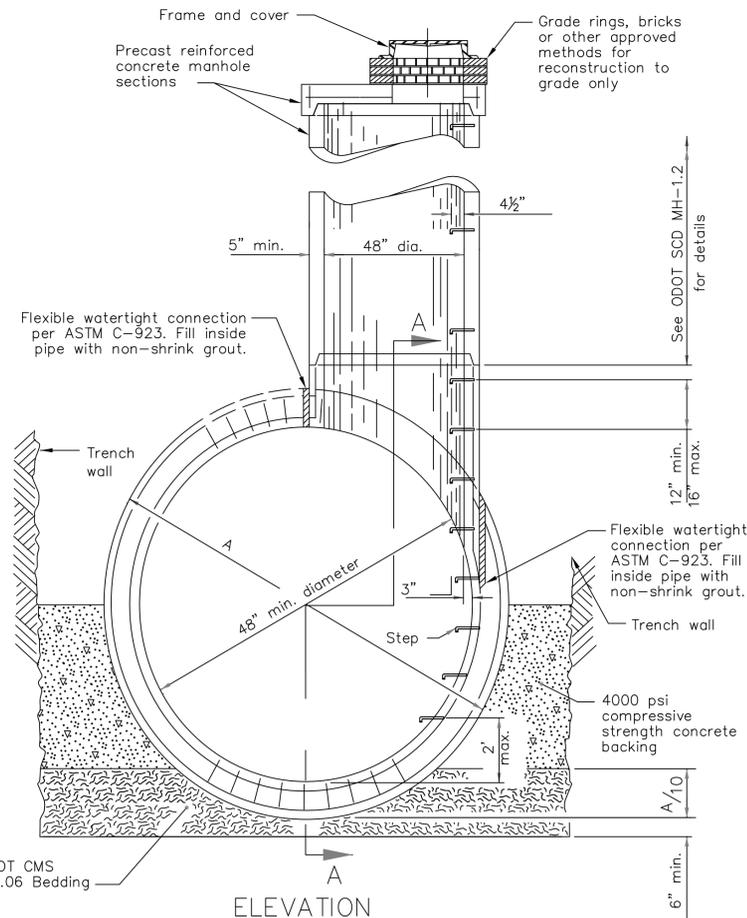
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| TASK ORDER: NNC12TB09T | RELEASE APPROVAL: | DATE: |
| DRAWN: RTF | DESIGNED: RJS | CHECKED: JEP |
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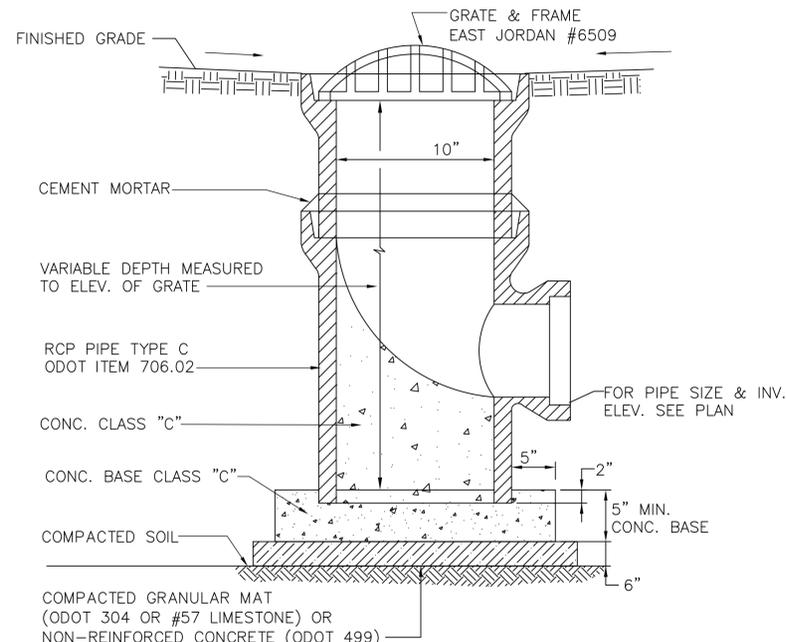
**DEEP (>28') STORM SEWER MANHOLE
DETAIL STRM-MH-3**

Not to Scale



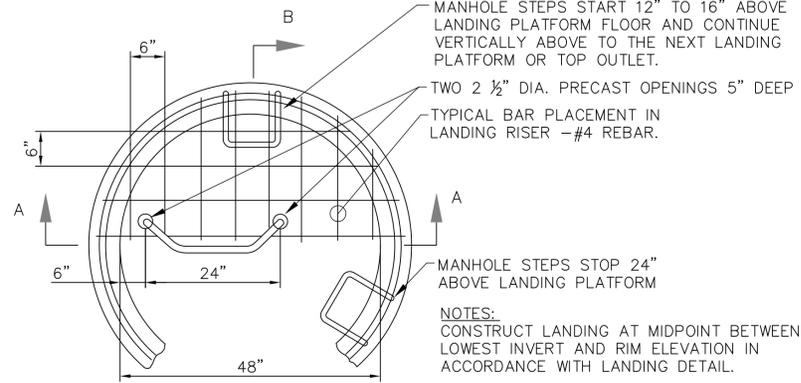
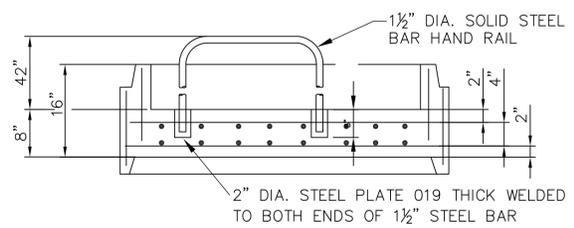
**STORM SEWER MANHOLE
AT EXISTING LARGE DIAMETER PIPE
DETAIL STRM-MH-4**

Not to Scale



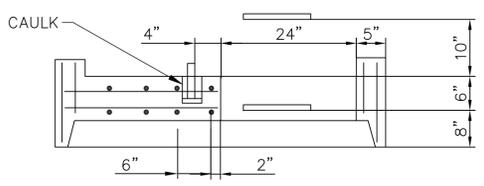
**ODOT CATCH BASIN NO.7
(MODIFIED FOR YARD DRAIN ONLY)
SECTION STRM-CB-2**

Not to Scale



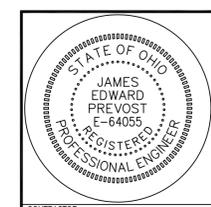
**DEEP MANHOLE LANDING
DETAIL STRM-MH-3.1**

Not to Scale



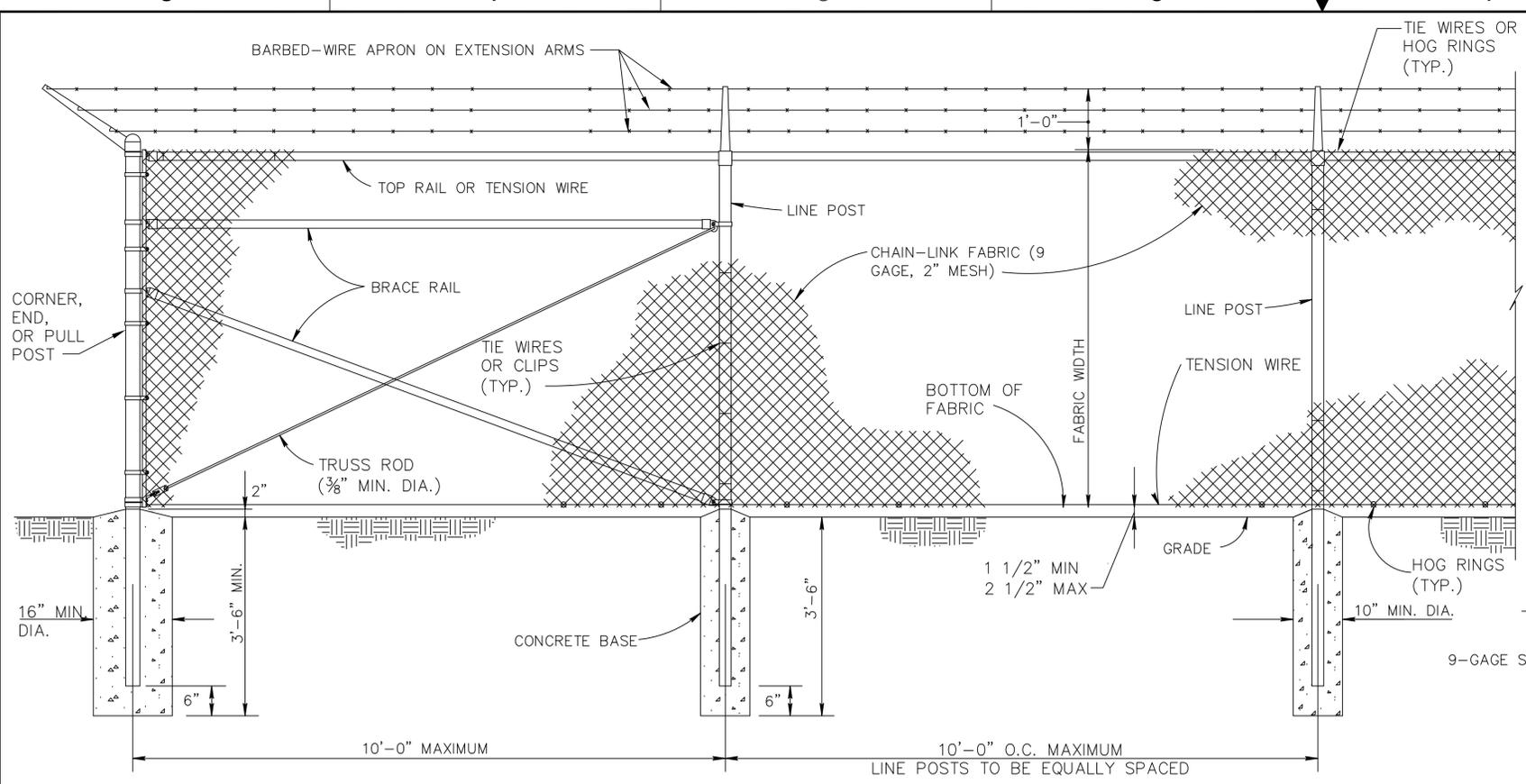
- NOTES:
- FOR ADDITIONAL DETAILS ON STRM-MH-3, SEE ODOT STD. DWG. MH-1.2.
 - FOR ADDITIONAL DETAILS ON STRM-MH-4, SEE ODOT STD. DWG. MH-2.1.
 - FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|---------------------------|----------------------------------|---------------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 STORM MANHOLE MISCELLANEOUS DETAILS | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 - C - 524 | | AREA: NASA GLENN RESEARCH CENTER | SHEET OF |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: NONE | OFFICIAL DATE: 01/29/2014 | | |

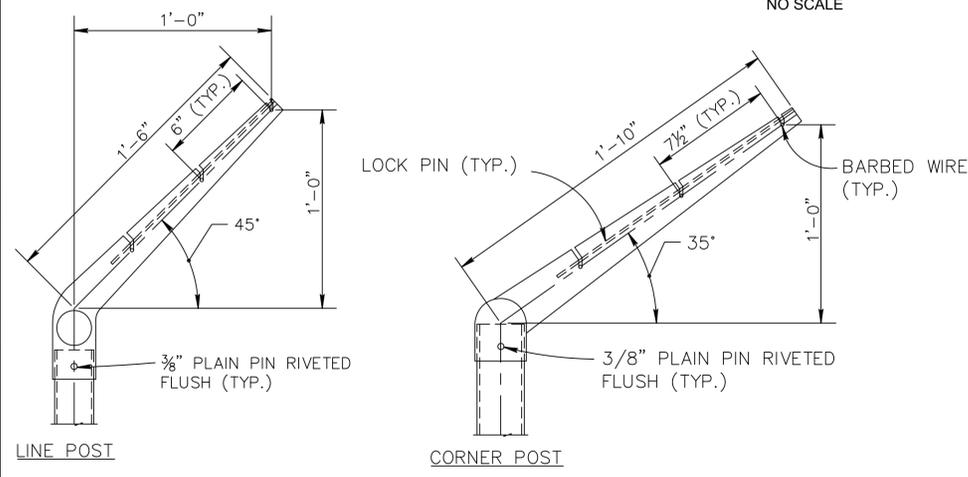


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| DRAWING/DESIGN STATUS: | | |
| FOR BID - 01/29/2014 | | |
| DRAWING MANAGEMENT | | |
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| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| CONTRACTOR: BARR & PREVOST | RELEASE APPROVAL: | DATE: |
| CONTRACT NO: NNC09BA13B | RELEASE APPROVAL: | DATE: |
| TASK ORDER: NNC12TB09T | RELEASE APPROVAL: | DATE: |
| DRAWN: RTE | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: | APPROVAL DATE: | RELEASE STATUS: |

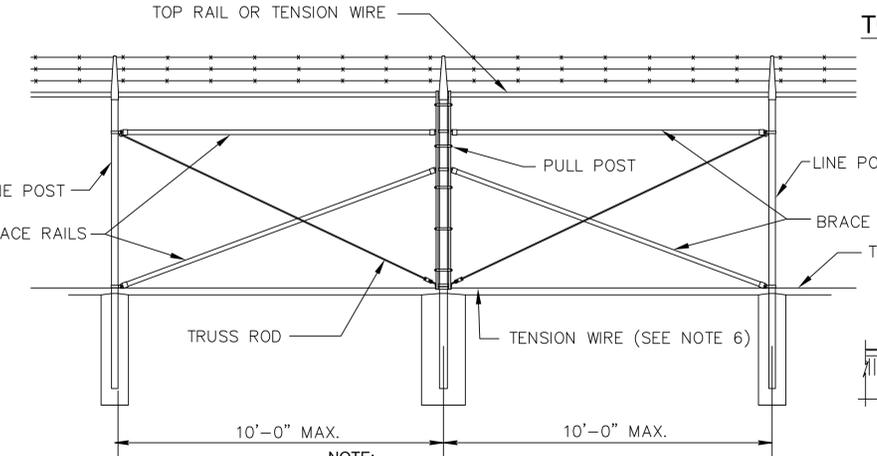
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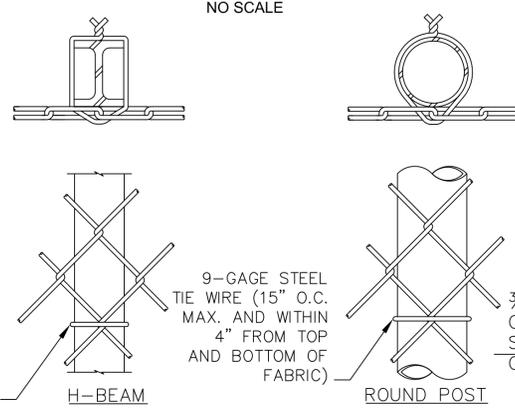
CHAIN-LINK SECURITY FENCE DETAIL
NO SCALE



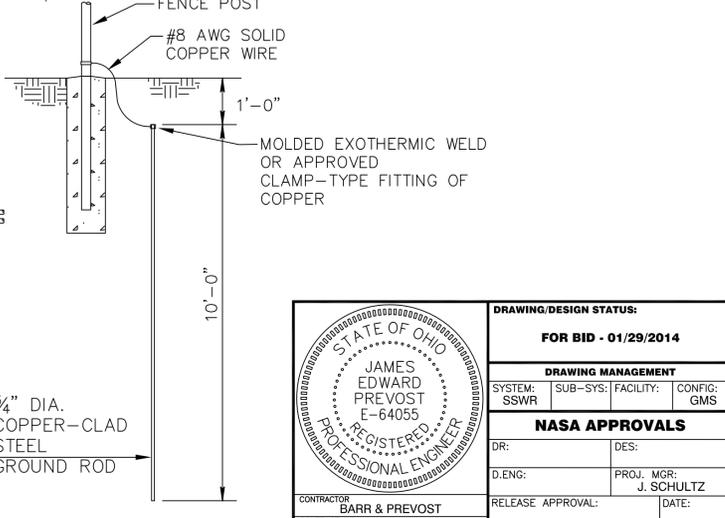
EXTENSION ARM DETAILS
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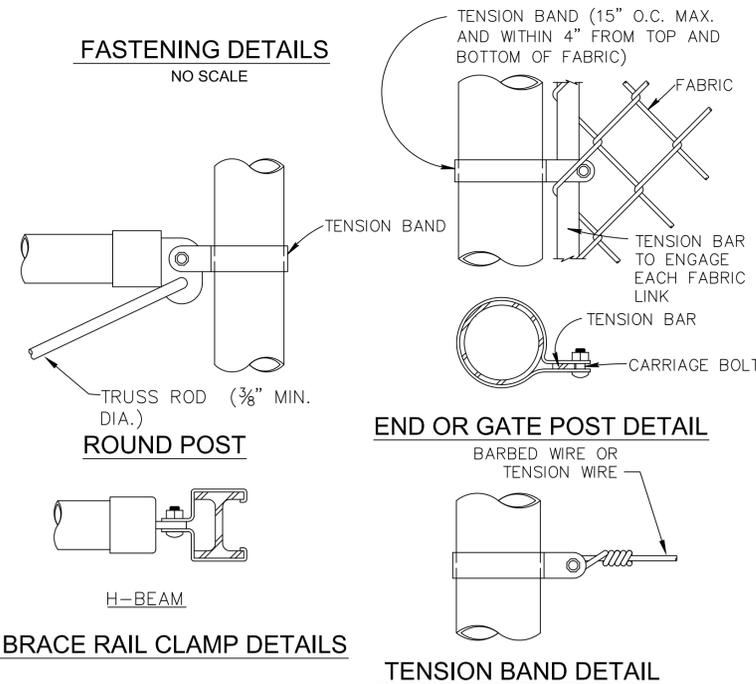
BRACE PANEL DETAIL
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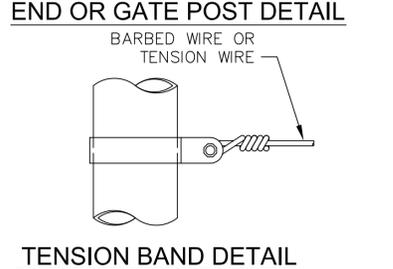
LINE POST ATTACHMENTS
NO SCALE



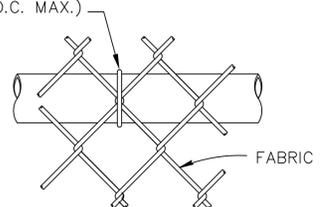
GROUNDING DETAIL
NO SCALE



FASTENING DETAILS
NO SCALE



END OR GATE POST DETAIL



TOP OR BRACE RAIL ATTACHMENT

TRUSS ROD AND BAND

| STEEL POST SCHEDULE | |
|---------------------------|--------------------------------------|
| USE AND SECTION | MINIMUM OUTSIDE DIMENSIONS (NOMINAL) |
| FABRIC WIDTH 84" TO 96" | |
| CORNER, END & PULL POSTS | |
| TUBULAR - ROUND | 4" O.D. |
| LINE POSTS | |
| TUBULAR - ROUND | 2 3/8" O.D. |
| TOP, BOTTOM & BRACE RAILS | |
| TUBULAR - ROUND | 1 1/8" O.D. |

DRAWING/DESIGN STATUS:
FOR BID - 01/29/2014

DRAWING MANAGEMENT
SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS

NASA APPROVALS
DR: | DES: |
D.ENG: | PROJ. MGR: J. SCHULTZ

CONTRACTOR: BARR & PREVOST
CONTRACT NO: NNC09BA13B
TASK ORDER: NNC12TB09T

DRAWN: JRB | DESIGNED: RJS | CHECKED: JEP | APPROVED: | APPROVAL DATE:

RELEASE APPROVAL: | DATE: |
RELEASE APPROVAL: | DATE: |
RELEASE APPROVAL: | DATE: |
RELEASE STATUS:

GENERAL NOTES

- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

CONSTRUCTION NOTES

- DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPES OF FENCE SECTIONS AND METHODS OF INSTALLATION THAT COMPLY WITH THE SPECIFICATIONS.
- WIRE TIES, RAILS, POSTS, AND BRACES SHALL BE CONSTRUCTED ON THE SECURE SIDE OF THE FENCE ALIGNMENT. CHAIN-LINK FABRIC SHALL BE PLACED ON THE SIDE OPPOSITE THE SECURE AREA. UNLESS SPECIFICALLY SHOWN OR SPECIFIED, ALL FENCE SHALL HAVE AN APRON EXTENDED OUTWARD FROM THE AREA BEING PROTECTED.
- C-SECTION POSTS SHALL BE INSTALLED SO THAT THE VOID INSIDE THE POST IS COMPLETELY FILLED WITH CONCRETE UP TO THE TOP OF THE FOUNDATION.
- INSTALL GFE "RESTRICTED AREA" SIGNAGE ON THE EXTERIOR SIDE OF PERIMETER FENCING. SIGNS SHALL BE PLACED A MINIMUM OF EVERY 100 FEET, AT EVERY CHANGE IN DIRECTION, AND AT EACH ENTRY POINT CENTERED ON THE GATE(S). SIGNAGE SHALL BE PLACED SO THE TOP EDGE IS POSITIONED 7 ABOVE GROUND FEET AND WHERE POSSIBLE, CENTERED ON THE FENCE FABRIC PANEL.
- FOR CRASH RATED SECURITY FENCE REPLACEMENT AT OUTFALL NO. 8 SEE ADDITIONAL DETAILS ON SHEET C-542.

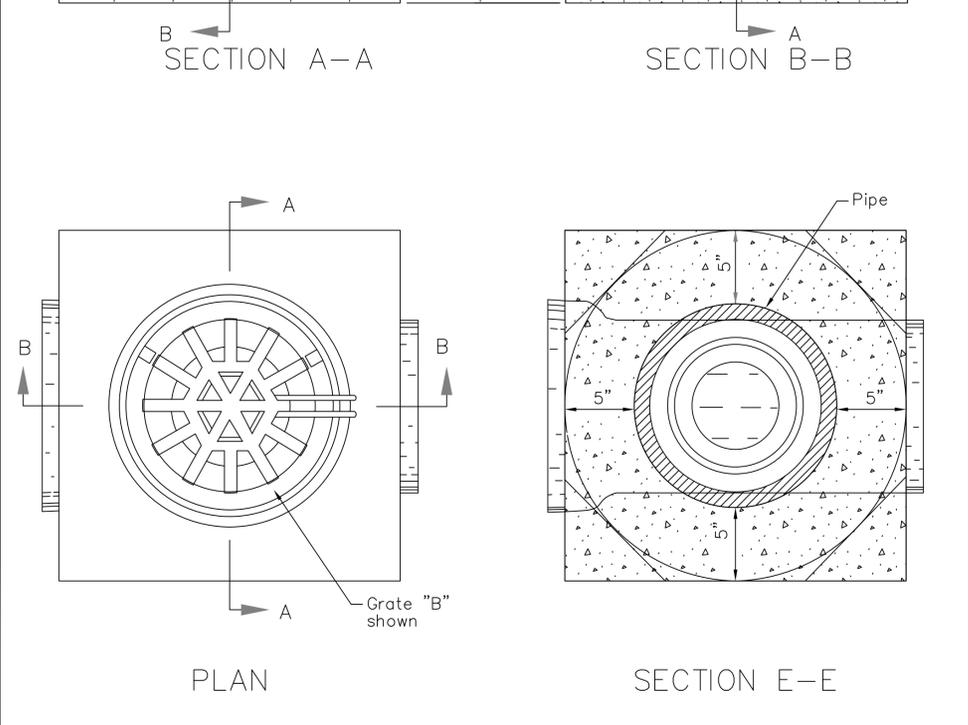
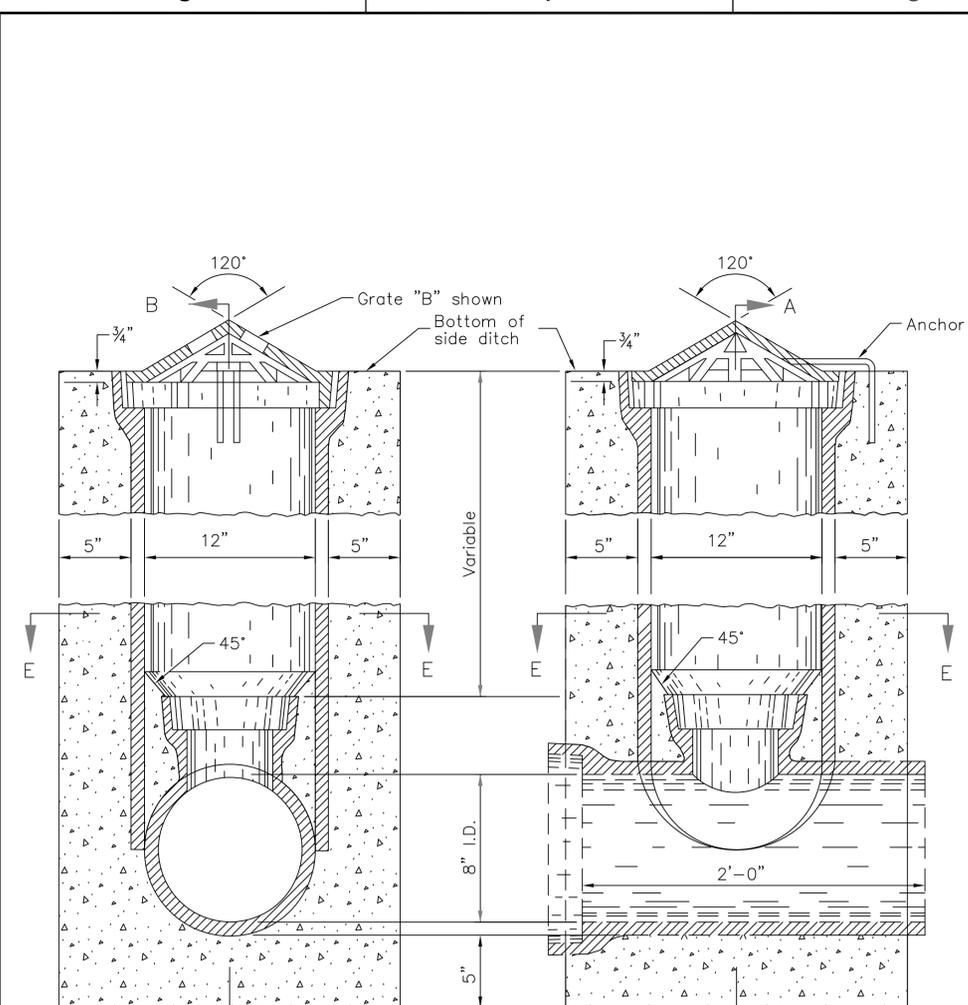
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|---|-----|-------------|----------|
| REVISIONS | | | |
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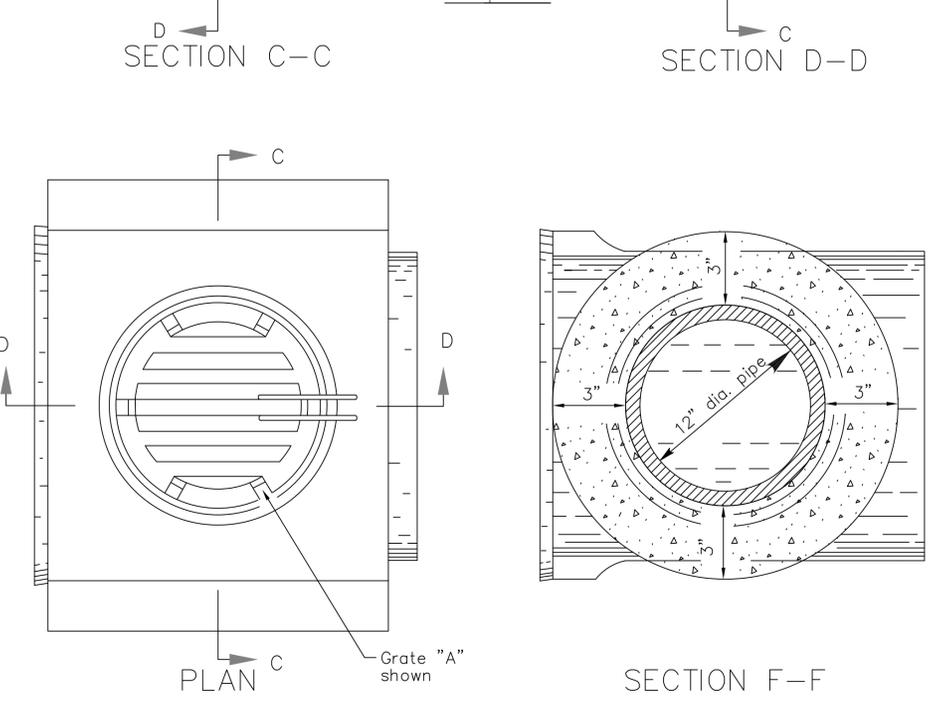
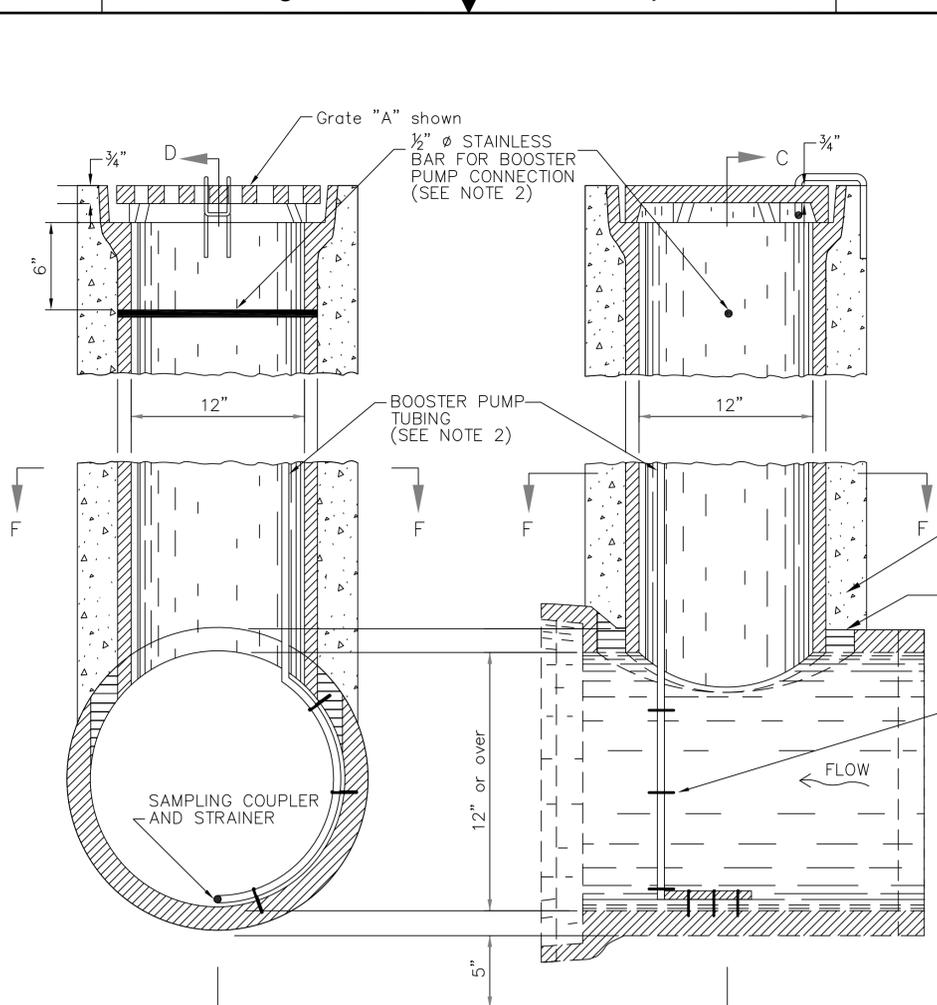
FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

CHAIN LINK SECURITY FENCING DETAILS

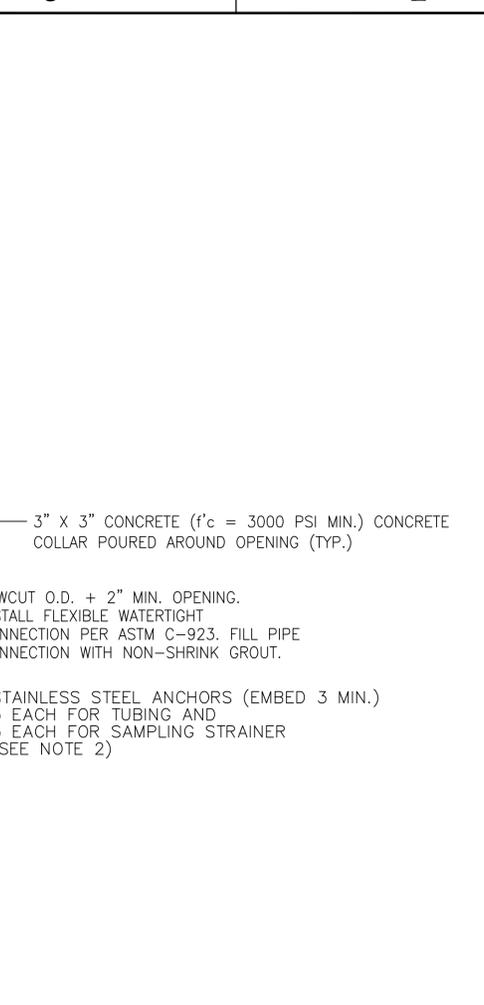
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| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER | |
| SCALE: N/A | OFFICIAL DATE: 01/29/2014 | | | |



**WINDOW WELL INLET – BUILDING 60
OUTFALL 21**



**SAMPLING STATION INLET
(OUTFALLS 6 & 8)**



STATE OF OHIO
JAMES EDWARD PREVOST
E-64065
REGISTERED PROFESSIONAL ENGINEER

DRAWING/DESIGN STATUS:
FOR BID - 01/29/2014

DRAWING MANAGEMENT
SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS

NASA APPROVALS
DR: | DES: |
D.ENG: | PROJ. MGR: J. SCHULTZ

CONTRACTOR: BARR & PREVOST
CONTRACT NO: NNC09BA13B
TASK ORDER: NNC12TB09T

DRAWN: RTF | DESIGNED: RJS | CHECKED: JEP | APPROVED: | APPROVAL DATE: |
RELEASE APPROVAL: | DATE: |
RELEASE APPROVAL: | DATE: |
RELEASE APPROVAL: | DATE: |
RELEASE STATUS: |

NOTES:

- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
- DETAILS FOR BOOSTER PUMP, TUBING, ANCHORS AND SAMPLER APPLY TO OUTFALL 6 ONLY.

DRAWING NOTES:

GRATES: PROVIDE GRATE "A" UNLESS THE PLANS SPECIFY GRATE "B". CAST THE FOLLOWING TEXT INTO THE TOP OF THE GRATE: "DUMP NO WASTE" AND "DRAINS TO WATERWAY" PRINT TEXT IN BOLD, CAPITAL LETTERS AT LEAST 1/2" HIGH. "WATERWAY" MAY BE SUBSTITUTED WITH "STREAM", "RIVER", "LAKE", ETC. ACTUAL PLACEMENT AND LOGO MAY VARY PER MANUFACTURER.

CASTINGS: MEET ODOT CMS 611 REQUIREMENTS. PROVIDE A DESIGN ESSENTIALLY THE SAME AND EQUALLY AS STRONG AS THE ONE SHOWN.

MINIMUM WEIGHT IS:
30 LBS. FOR GRATE "A".
20 LBS. FOR GRATE "B"

LIGHTER WEIGHT GRATES THAT MEET THE REQUIREMENTS OF ODOT CMS 711.14 MAY ALSO BE PROVIDED. PROVIDE GRATE OPENINGS AND DIMENSIONS AS SHOWN HERE UNLESS OTHERWISE SHOWN IN THE PLANS.

CASTING ANCHOR: IS TO BE A 3/8" RADIUS 2' LONG, BENT AROUND GRATE AS SHOWN AND ANCHORED INTO CONCRETE CASING.

PRECAST CONSTRUCTION: PERMITTED. MEET THE CONCRETE REQUIREMENTS OF ODOT CMS 706.13. PROVIDE SUFFICIENT REINFORCING TO PERMIT SHIPPING AND PLACEMENT WITHOUT DAMAGE.

LOCATION AND ELEVATION: WHEN GIVEN ON THE PLANS THE LOCATION IS AT THE CENTER OF THE GRATE. THE ELEVATION IS AT THE LOWEST POINT ON THE GRATE.

CONCRETE CASING: CASING FOR RISER MAY BE SQUARE, ROUND OR HEXAGONAL IN SHAPE. USE 4000 PSI COMPRESSIVE STRENGTH CONCRETE.

RISER PIPE: RISER IS 12" IN DIAMETER REGARDLESS OF SIZE OF SEWER LINE.

TEE: WHERE SEWER LINE IS NOT CONTINUOUS THROUGH INLET, PLUG THE UPSTREAM OPENING OF THE TEE PROPERLY USING A PREFORMED STOPPER AND SEALED JOINT.

RISER AND TEE: MEET THE REQUIREMENTS OF ODOT CMS 611 TYPE B PIPE MATERIAL OR FURNISH PRECAST AS NOTED ABOVE.

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |

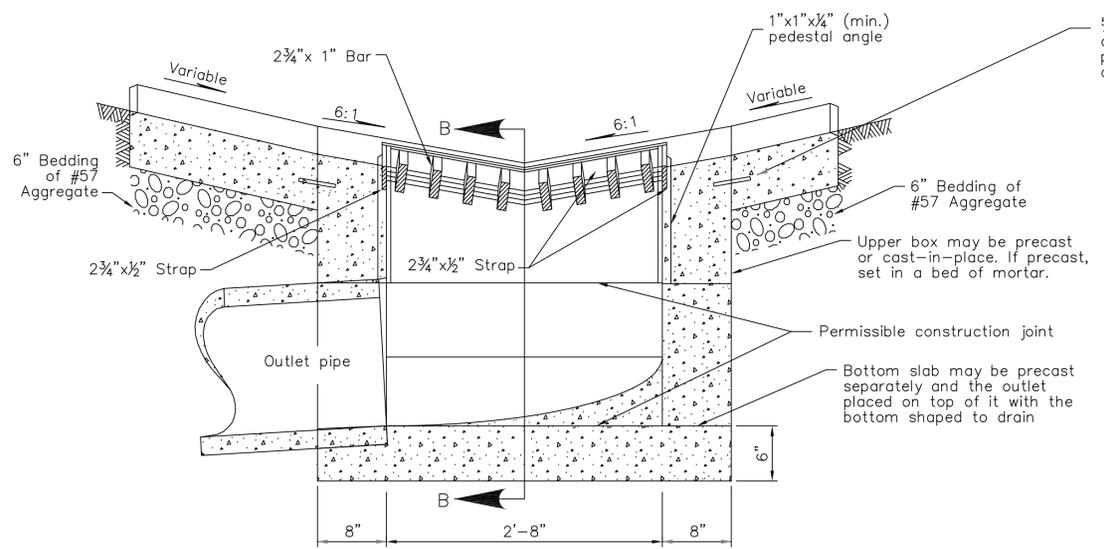
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

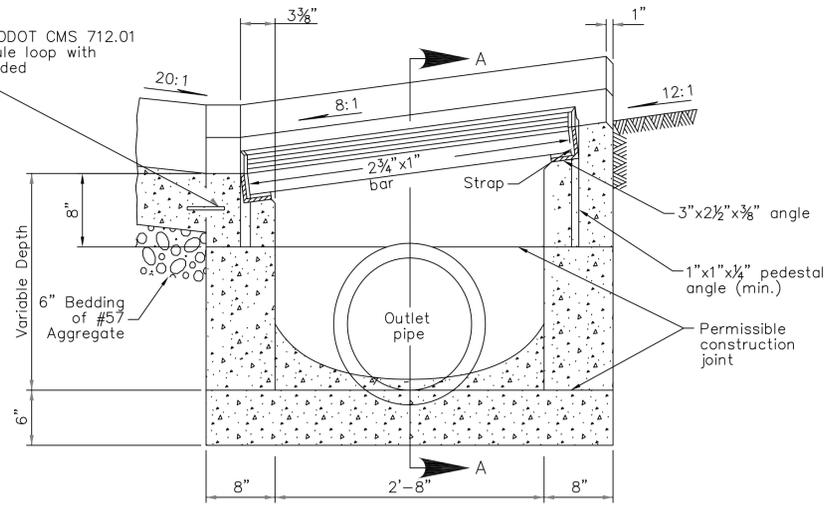
**STORM SEWER INLETS
MISCELLANEOUS DETAILS**

| | | | | |
|----------------------------------|---------------------------|------------------|-------|---------|
| SIZE | BLDG/SYS | PROJECT ID | DISCP | TYP SEQ |
| CD STRM - COF20196 | | - C - 526 | | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER | |
| SCALE: NONE | OFFICIAL DATE: 01/29/2014 | | | |

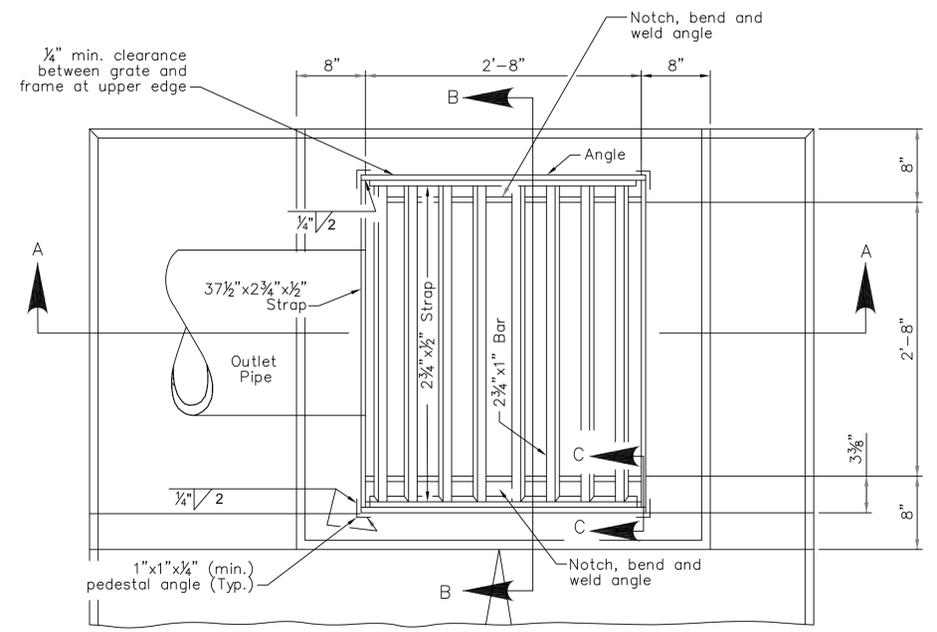
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SECTION A-A

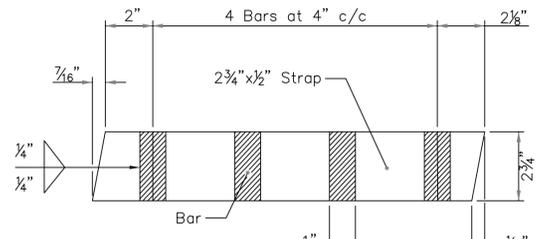


SECTION B-B

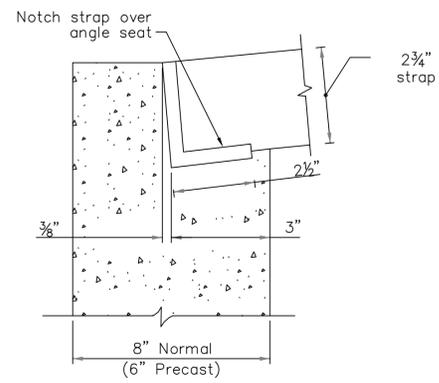


PLAN OF CATCH BASIN

CATCH BASIN NO. 8
NOT TO SCALE



SECTION THRU HALF OF GRATE "C"



SECTION C-C

NOTE: 1"x1"x1/4" pedestal angles not shown

- NOTES:
- SEE ODOT CB-3.3 STANDARD DETAILS FOR COMPLETE DIMENSION AND REINFORCEMENT INFORMATION.
 - FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

DRAWING NOTES:

GRATE AND FRAME: Use structural steel according to ODOT CMS 711.01 and 513. Provide a design essentially the same and equally as strong as the one shown.

GRATE: Depress the grate 3" below the upstream end of the concrete apron at the centerline of the ditch.

WALLS: Construct brick or cast-in-place walls with a nominal thickness of 8" from the bottom slab to the upper box.

PRECAST CONSTRUCTION: Permitted, except for the apron. Meet the concrete requirements of ODOT CMS 706.13. Provide precast walls at least 6" thick with sufficient reinforcing to permit shipping and placement without damage. Reduce the wall thickness from the outside.

STEPS: Provide steps meeting the requirements of ODOT SCD MH-1.1 where the depth exceeds 6'.

BASINS OVER 12 FEET DEEP: Use precast or cast-in-place concrete; reinforce with #4 bars on 12" centers both vertically and horizontally with 2" clearance from inside wall face.

LOCATION AND ELEVATION: When given on the plans the location is at the center of the grate. The elevation is the lowest point on the grate.

OPENINGS: Obtain the Engineer's approval for any pipe openings greater than 4" from the outside of the pipe to the structure. Fill any voids per ODOT CMS 611.

CONCRETE APRONS: Construct aprons in such a manner that the outside edges are at equal elevations.

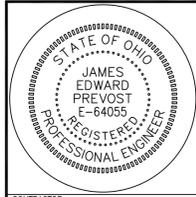
If specified in the plans, grouted riprap may be used in place of the concrete apron.

DITCH PROTECTION: Provide a 150' length of ditch erosion protection as shown. Installation and payment for the ditch erosion protection are per ODOT CMS 670.

BASINS IN SAG: When in a sag, omit the earth dike and longitudinal slope of grate, and provide concrete apron and ditch protection on each side of the basin.

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |

| | | | |
|---|---------------------------|-----------------|------------------|
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 CATCH BASIN MISCELLANEOUS DETAILS | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISC/TYP SEQ |
| CD | STRM | COF20196 | - C - 527 |
| AREA: ENGLISH | SOFTWARE: AUTOCAD 2012 | SHEET OF | REVISION VER |
| SCALE: NONE | OFFICIAL DATE: 01/29/2014 | | |



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| DRAWING/DESIGN STATUS: | | | |
| FOR BID - 01/29/2014 | | | |
| DRAWING MANAGEMENT | | | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS | |
| NASA APPROVALS | | | |
| DR: | DES: | | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | | |
| CONTRACTOR: BARR & PREVOST | RELEASE APPROVAL: | DATE: | |
| CONTRACT NO: NNC09BA13B | RELEASE APPROVAL: | DATE: | |
| TASK ORDER: NNC12TB09T | RELEASE APPROVAL: | DATE: | |
| DRAWN: RTE | DESIGNED: RJS | CHECKED: JEP | APPROVED: |
| APPROVED: | APPROVAL DATE: | RELEASE STATUS: | |

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NOTES

- NOTES:
 1. REFER TO ODOT STD. DWG. CB-3.3.
 2. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

GRATE AND FRAME: Use structural steel according to ODOT CMS 711.01 and 513. Provide a design essentially the same and equally as strong as the one shown.

GRATE: Depress the grate 3" below the upstream end of the concrete apron at the centerline of the ditch.

WALLS: Construct brick or cast-in-place walls with a nominal thickness of 8" from the bottom slab to the upper box.

PRECAST CONSTRUCTION: Permitted, except for the apron. Meet the concrete requirements of ODOT CMS 706.13. Provide precast walls at least 6" thick with sufficient reinforcing to permit shipping and placement without damage. Reduce the wall thickness from the outside.

STEPS: Provide steps meeting the requirements of ODOT SCD MH-1.1 where the depth exceeds 6".

BASINS OVER 12 FEET DEEP: Use precast or cast-in-place concrete; reinforce with #4 bars on 12" centers both vertically and horizontally with 2" clearance from inside wall face.

LOCATION AND ELEVATION: When given on the plans the location is at the center of the grate. The elevation is the lowest point on the grate.

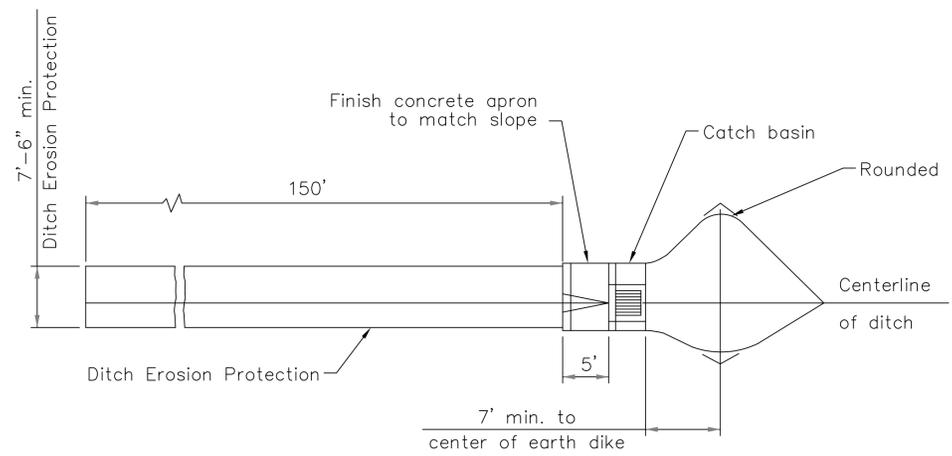
OPENINGS: Obtain the Engineer's approval for any pipe openings greater than 4" from the outside of the pipe to the structure. Fill any voids per ODOT CMS 611.

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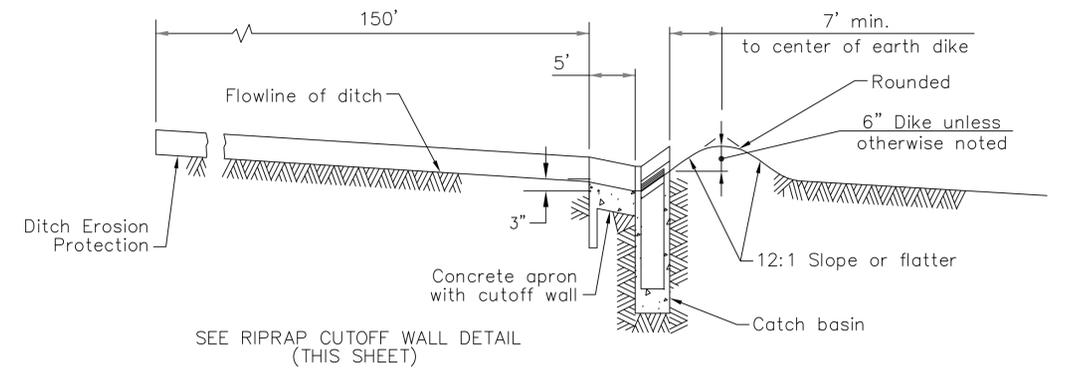
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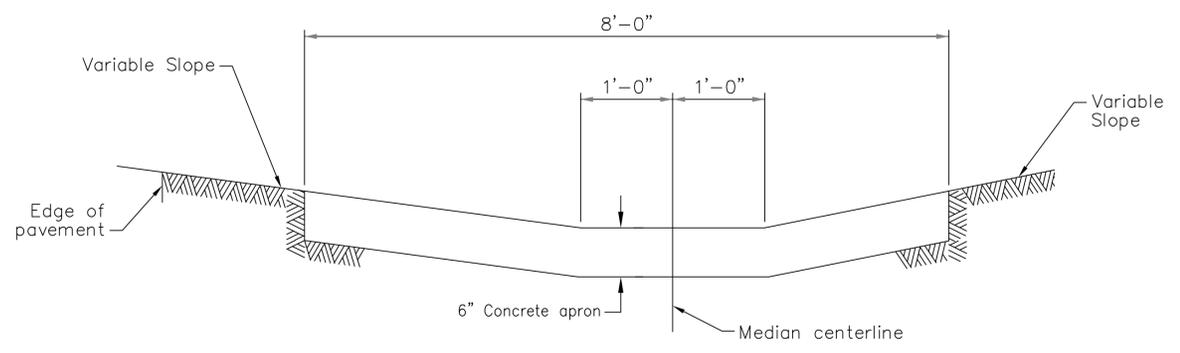


PLAN



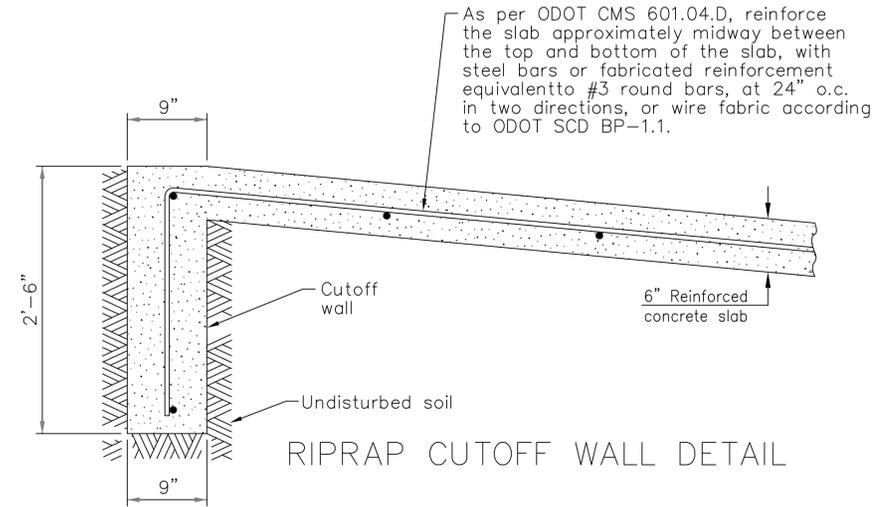
VERTICAL SCALE DISTORTED PROFILE

MEDIAN GRADING AT CATCH BASIN

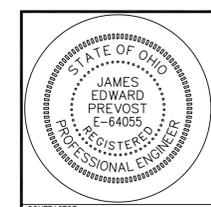


UPSTREAM END VIEW OF CONCRETE APRON OR GROUDED RIPRAP

| CONSTRUCTION INFORMATION | |
|---------------------------|----------|
| Typical weight of grate = | 245 lbs. |
| Typical weight of frame = | 65 lbs. |



RIPRAP CUTOFF WALL DETAIL



| | | |
|------------------------|-----------------------|---------------|
| DRAWING/DESIGN STATUS: | | |
| FOR BID - 01/29/2014 | | |
| DRAWING MANAGEMENT | | |
| SYSTEM: SSWR | SUB-SYS: | FACILITY: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| RELEASE APPROVAL: | DATE: | |
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| RELEASE STATUS: | | |

| CHG | NUM | DESCRIPTION | APP/DATE |
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| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
 JOHN H. GLENN RESEARCH CENTER
 LEWIS FIELD & PLUM BROOK STATION, OHIO

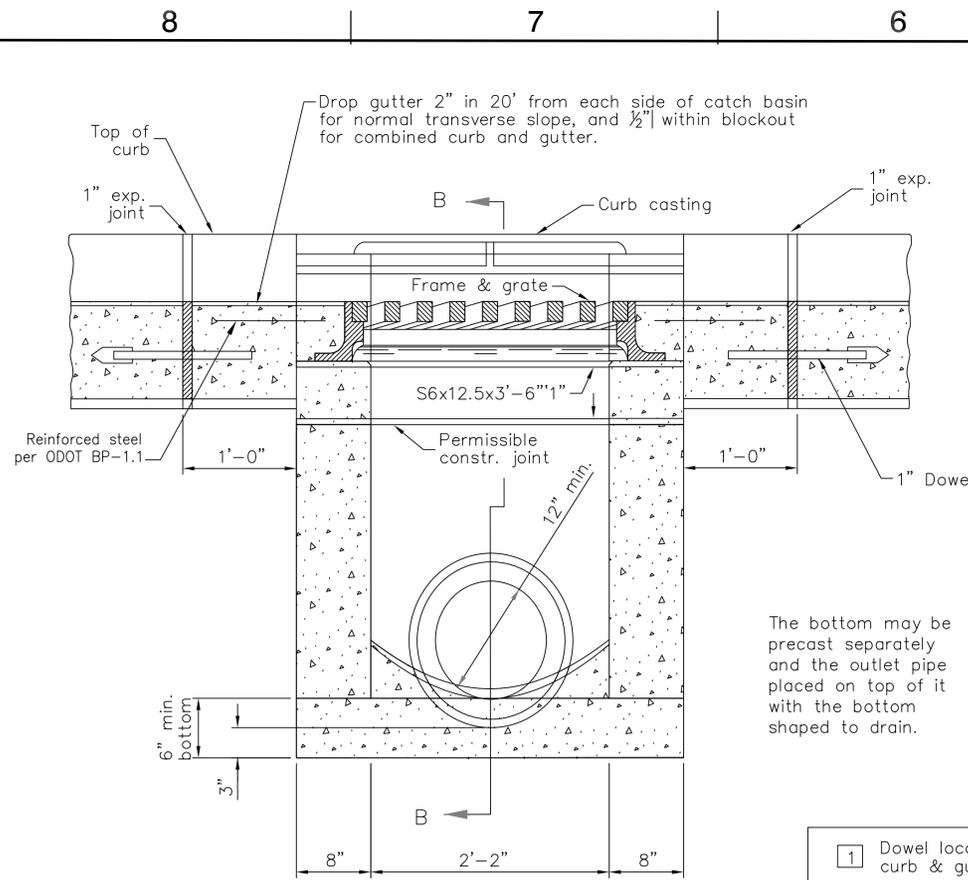
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| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 528 | |
| AREA: NASA GLENN RESEARCH CENTER | SHEET OF | | |
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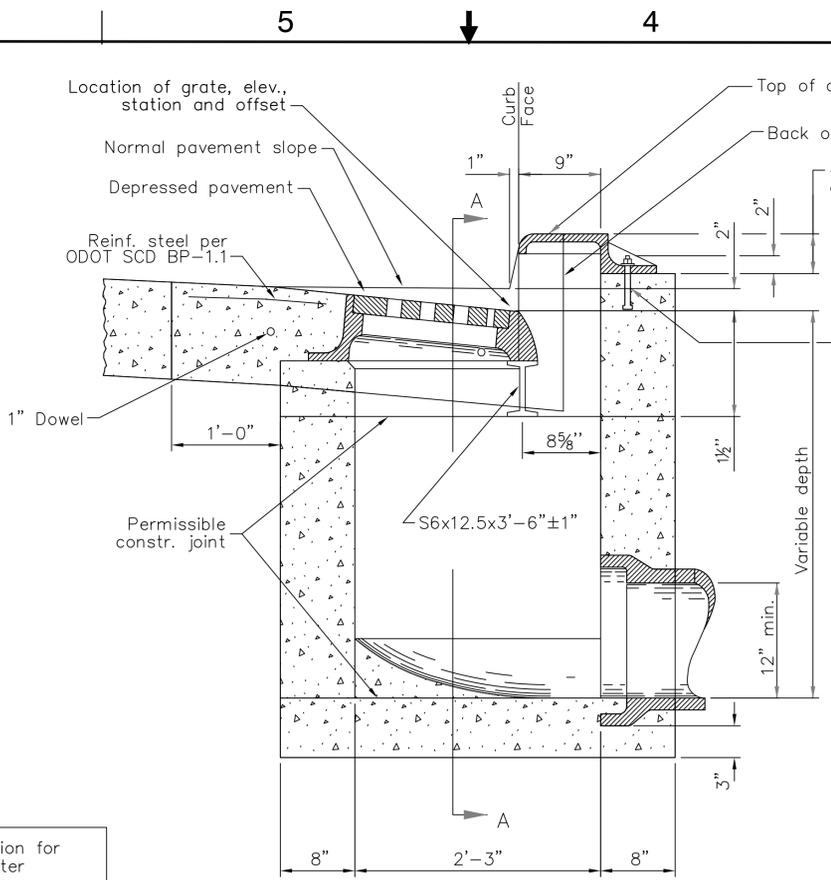
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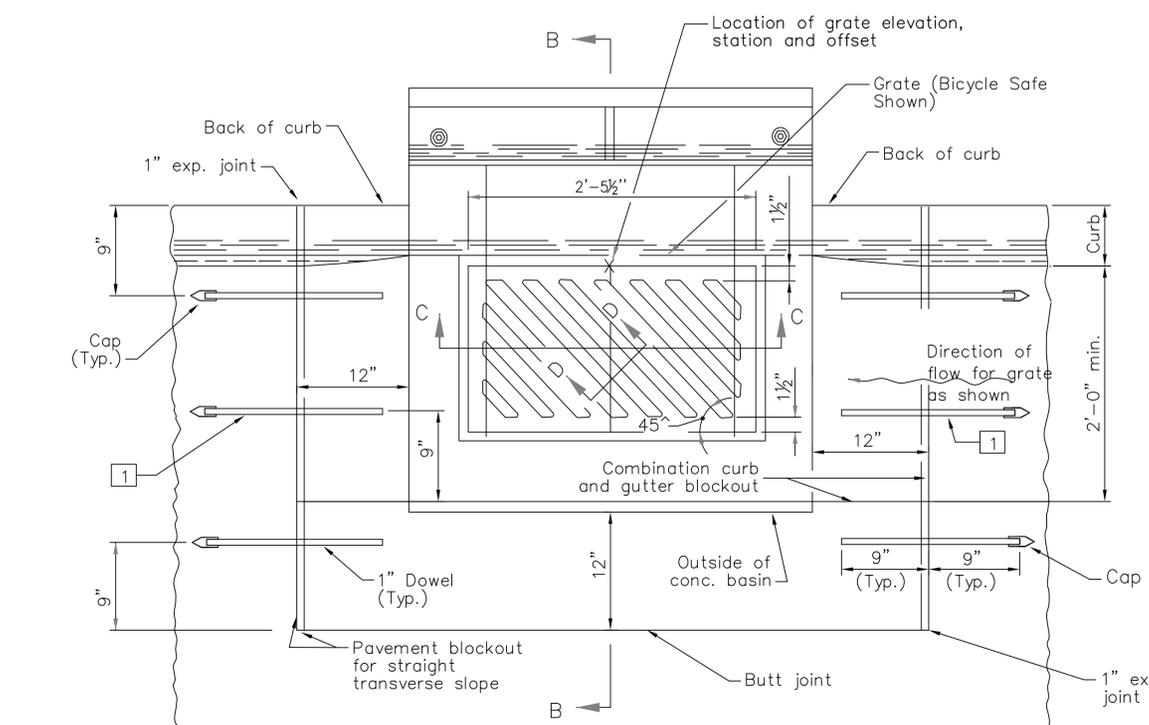
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SECTION A-A

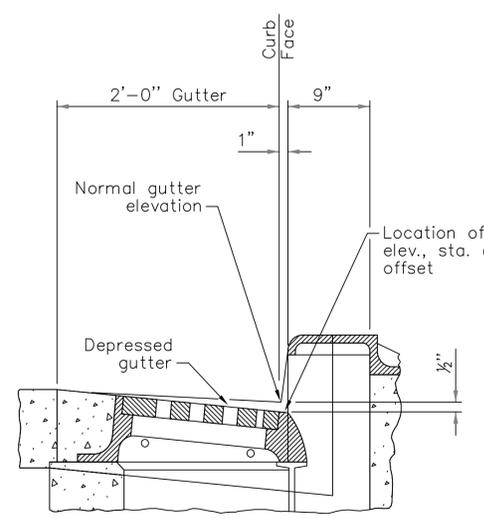


SECTION B-B WITH CURB (2" DEPRESSION)



PLAN OF CATCH BASIN AND PAVEMENT JOINTS (FOR SECTIONS C-C AND D-D, SEE SHEET C-530)

CATCH BASIN NO. 3A



SECTION B-B WITH CURB & GUTTER (1/2" DEPRESSION)

NOTES:

GRATES: Two required. For details, see ODOT SCD CB-2.2. Provide Grate "V" unless the plans specifically require the diagonal grate. If the diagonal grate is specified, place it so that the diagonal bars direct drainage flow toward the curb.

CASTINGS: Provide a design essentially the same and equally as strong as the one shown. Minimum weight:

- Curb Casting 305 lbs.
- Two Grates 254 lbs.
- Frame 590 lbs.
- Two Grate "V" 210 lbs.

Lighter weight frames and grates that meet the requirements of ODOT CMS 711.14 may also be provided. Provide grate openings and dimensions as shown here unless otherwise shown in the plans.

Cast the following text into the top of the curb casting:

"DUMP NO WASTE" and "DRAINS TO WATERWAY"

Print text in bold, capital letters at least 3/4" high. See example on Plan & Section. "WATERWAY" may be substituted with "STREAM", "RIVER", "LAKE", etc. Actual placement and logo may vary per manufacturer.

BEARING AREAS: Fit and finish the frame and grate to provide a firm and even seat. No projections are permitted on bearing areas, and the grate must seat in its frame without rocking.

WALLS: When used in place of concrete, construct brick side walls with 8" nominal thickness.

PRECAST CONSTRUCTION: Permitted, except for the apron. Meet ODOT CMS 706.13 concrete requirements. Provide precast walls at least 6" thick with sufficient reinforcing to permit shipping and placement without damage. Reduce the wall thickness from the outside.

MINIMUM DEPTH: The minimum depth is per the cover requirements for that pipe type.

OPENINGS: Obtain the Engineer's approval for any pipe openings greater than 4" from the outside of the pipe to the structure. Fill all voids per ODOT CMS 611.

DOWELS: Furnish four 1"x18" dowels for concrete pavement or gutter breakout. See ODOT SCD BP-2.2 for dowel details.

BLOCKOUT: Pave blockouts with 4000 psi compressive strength concrete in PCC pavement or gutter. Blockouts are paid for as part of the pavement or gutter with no deduction in pavement, curb or gutter quantities because of the castings. Cast a 4000 psi compressive strength concrete apron, the size of the 2'-0" gutter breakout, in place in asphalt pavement (no dowels required) with the cost included in the catch basin bid price. No deduction is made in curb quantities.

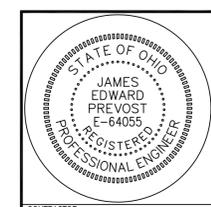
- NOTES:
1. REFER TO ODOT STD. DWG. CB-2.2.
 2. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

| CHG | NUM | DESCRIPTION | APP/DATE |
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FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1
CATCH BASIN
MISCELLANEOUS DETAILS

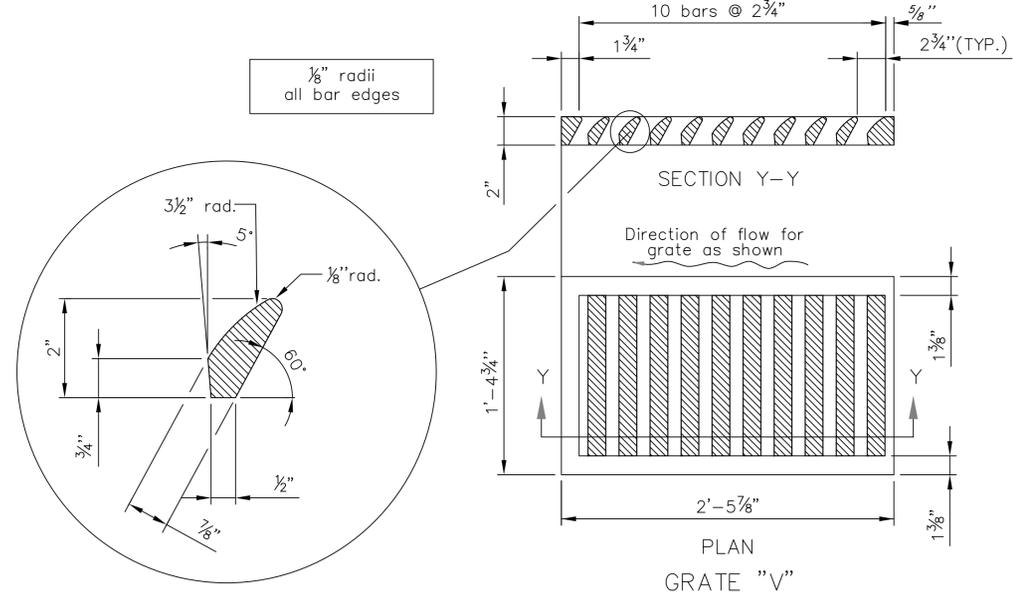
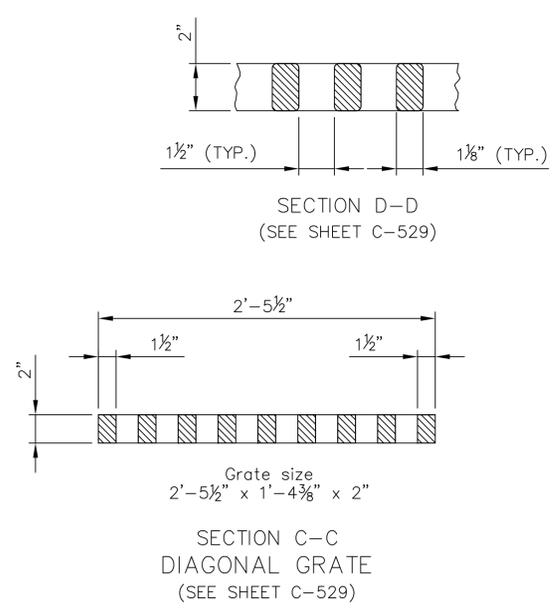
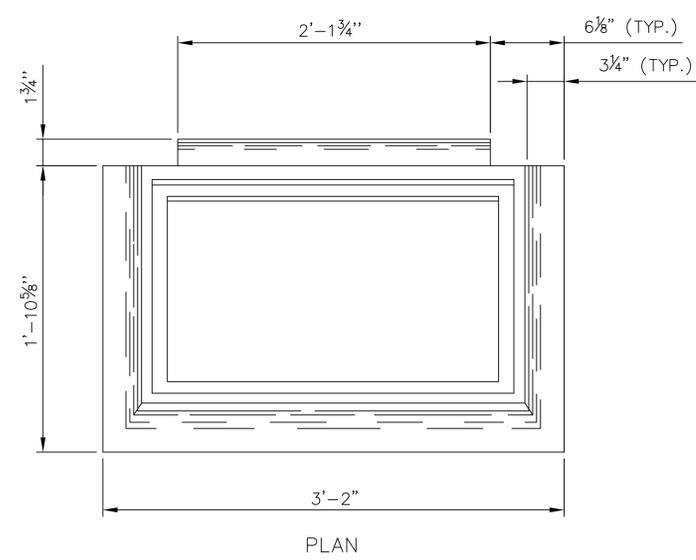
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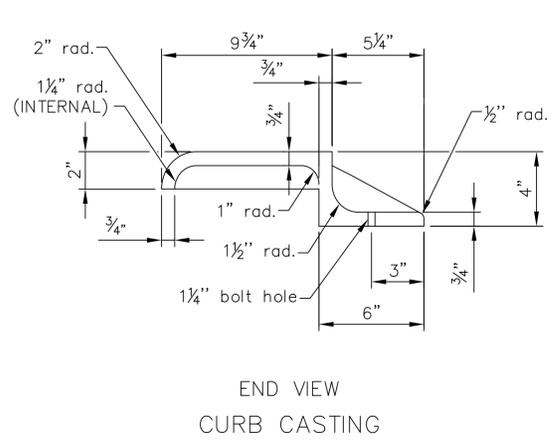
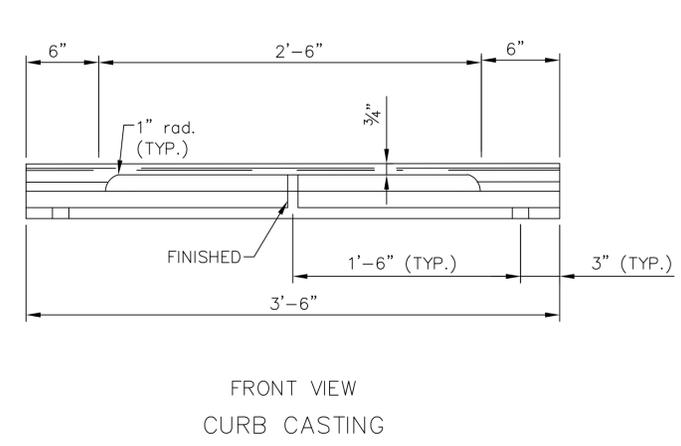
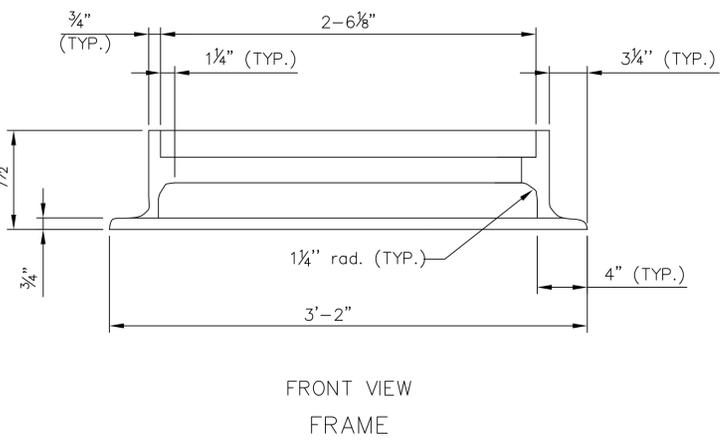
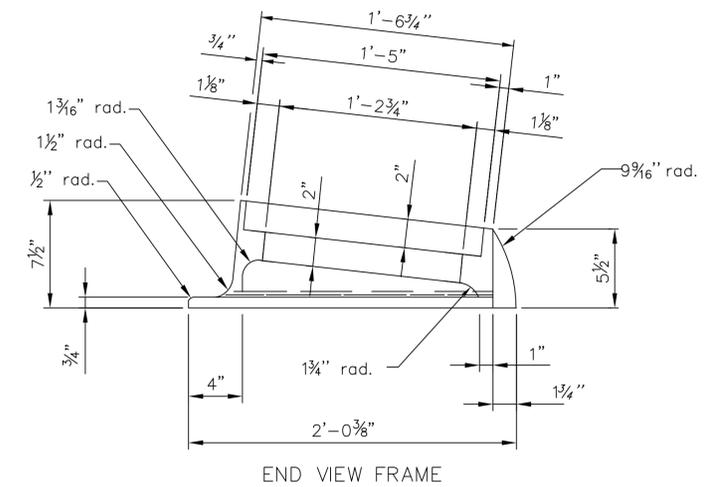
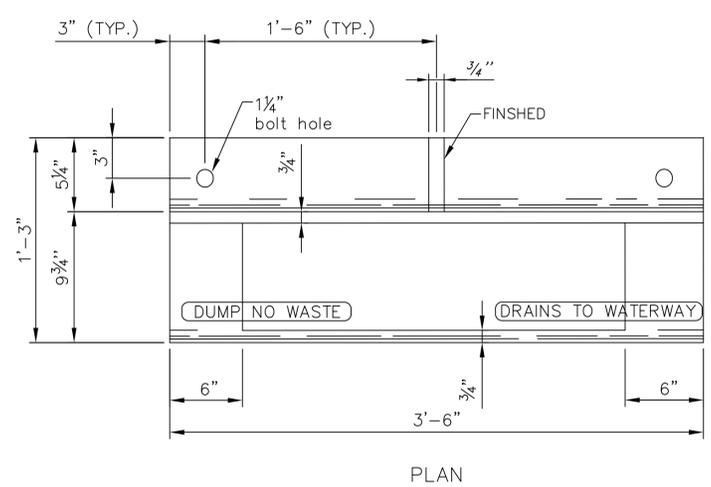
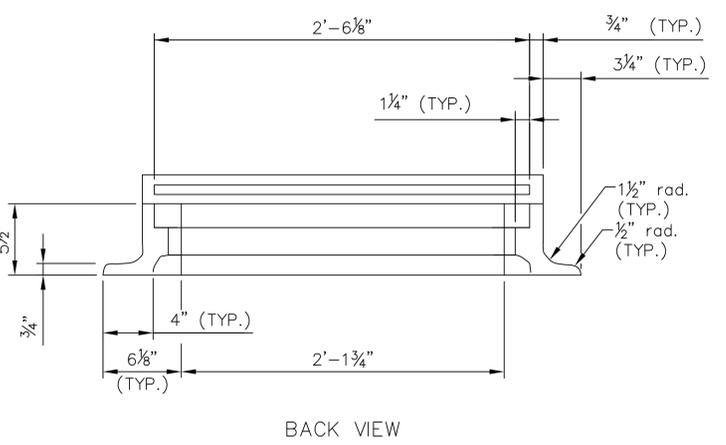
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| DR: | DES: | |
| D.ENG: | PROJ. MGR: | J. SCHULTZ |
| RELEASE APPROVAL: | DATE: | |
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| RELEASE STATUS: | | |

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| CONTRACTOR: BARR & PREVOST | CONTRACT NO: NNC09BA13B |
| TASK ORDER: NNC12TB09T | |
| DRAWN: RTF | DESIGNED: RJS |
| CHECKED: JEP | APPROVED: [Signature] |

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NOTES:
 1. REFER TO ODOT STD. DWG. CB-2.2.
 2. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.



CATCH BASIN NO. 3A

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
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| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 CATCH BASIN MISCELLANEOUS DETAILS | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
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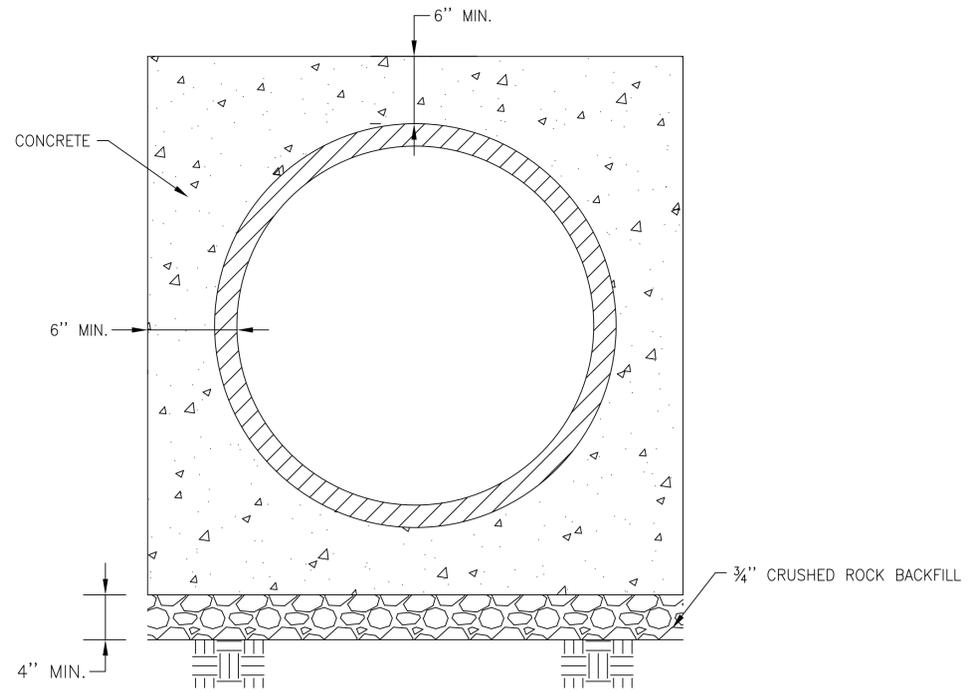
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 CONTRACT NO: NNC09BA13B
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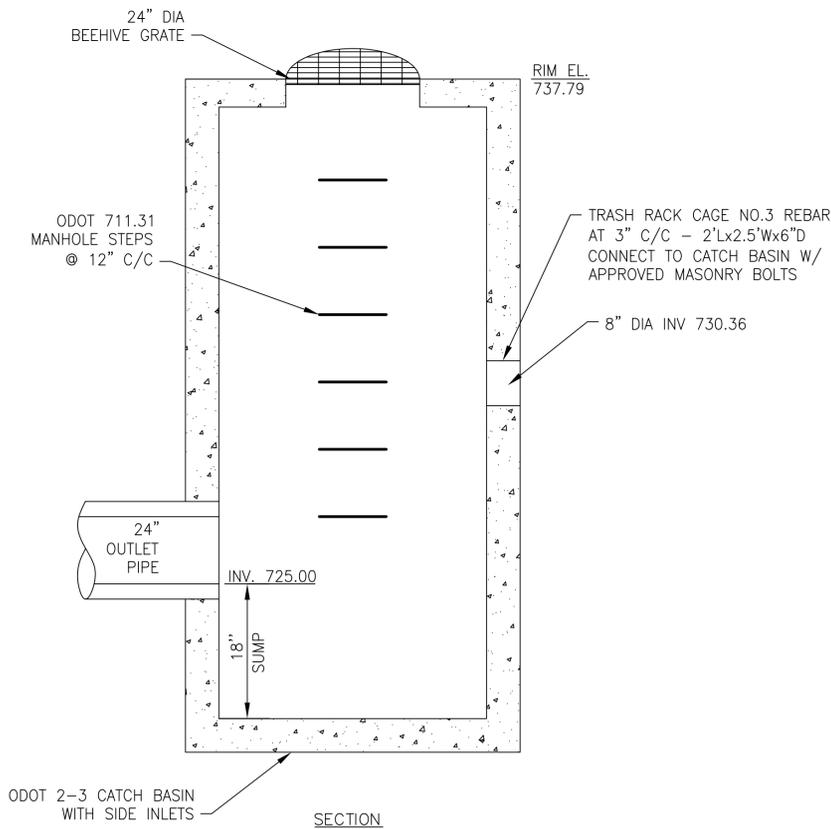
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 APPROVAL DATE: _____

STATE OF OHIO
 JAMES EDWARD PREVOST
 E-64065
 REGISTERED PROFESSIONAL ENGINEER

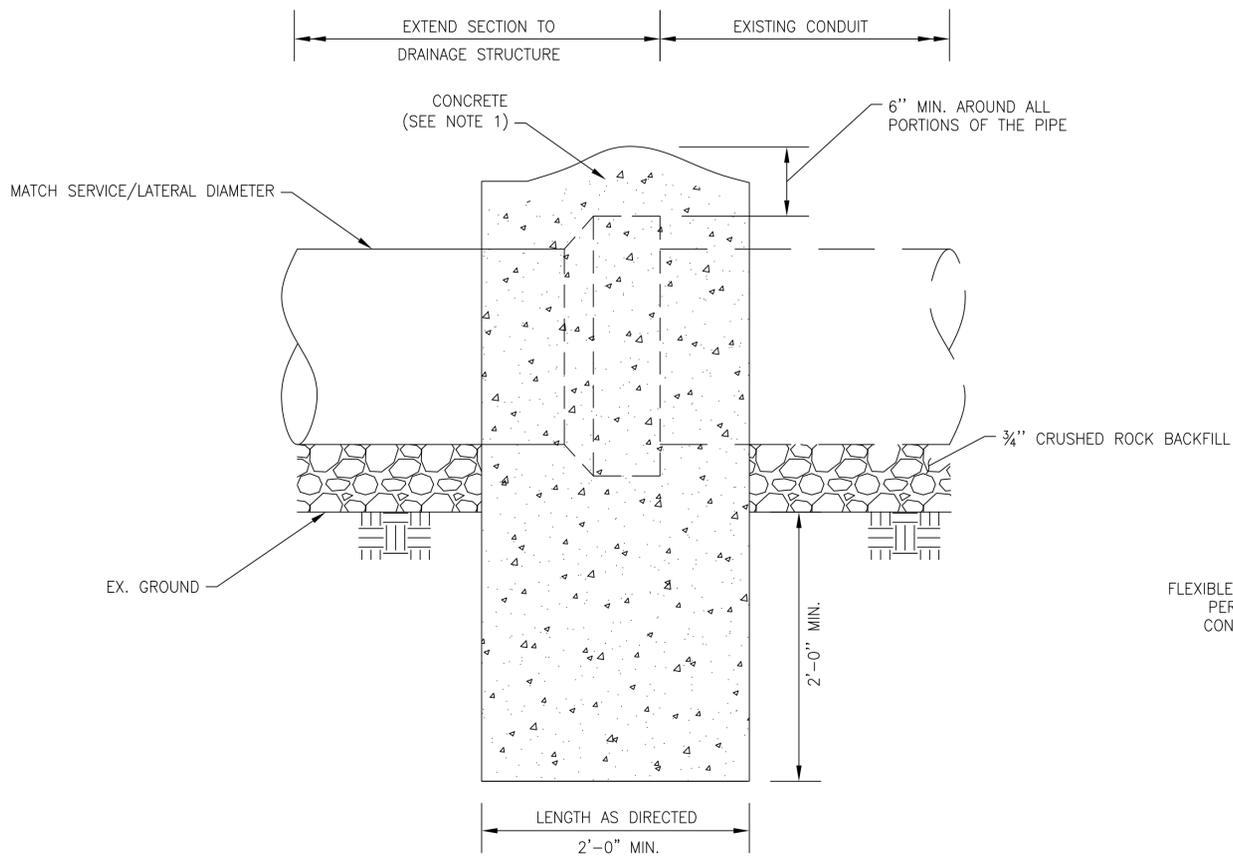
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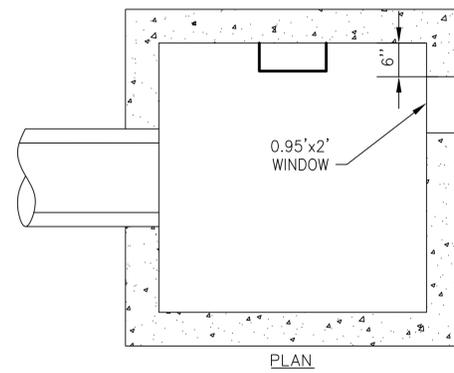
SECTION VIEW



SECTION

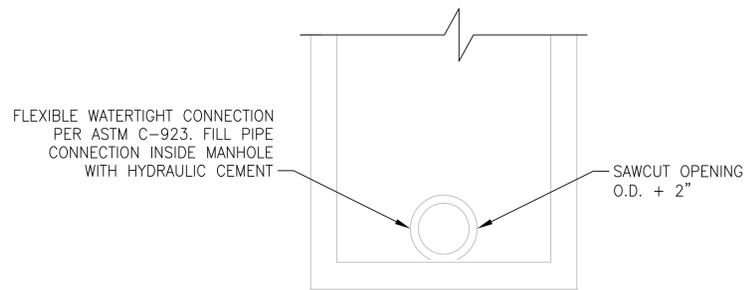


PROFILE VIEW
CONCRETE ANCHOR RESTRAINT



PLAN

RETENTION POND OUTLET STRUCTURE
(IWS - WEST BASIN)



CONNECTION AT EXISTING
DRAINAGE STRUCTURE

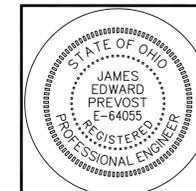
- NOTES:
1. CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 3000 PSI AND 2" TO 4" OF SLUMP.
 2. CONCRETE COLLAR TO BE PROVIDED AT EACH JOINT FOR OUTFALL PIPE SLOPES OF 8% OF GREATER.
 3. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

| CHG | NUM | DESCRIPTION | APP/DATE |
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FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1
CONCRETE ANCHOR & STRUCTURE OUTLET MISCELLANEOUS DETAILS

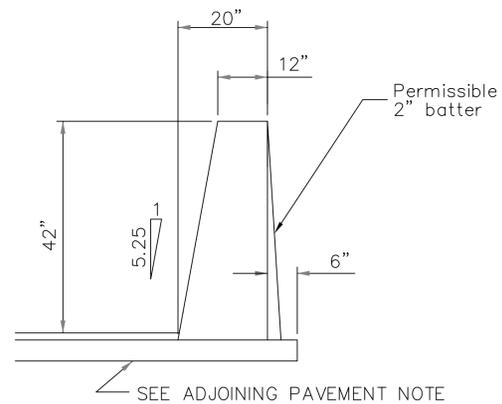
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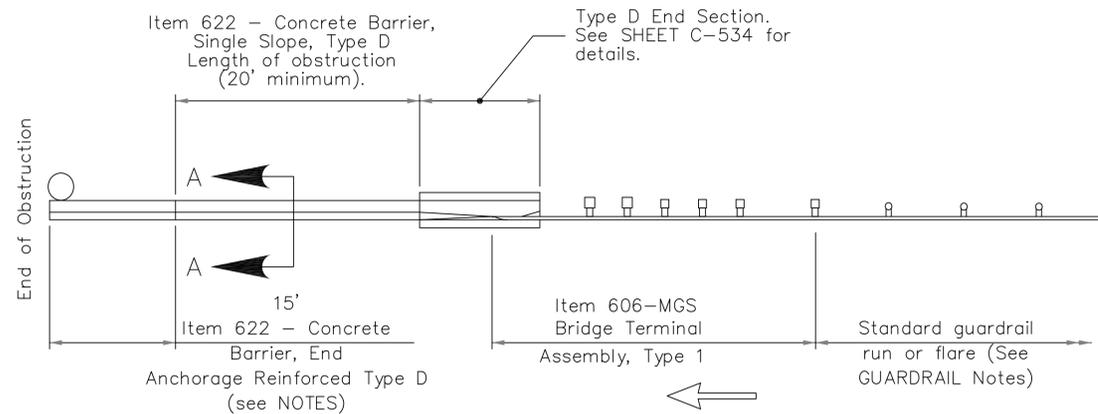
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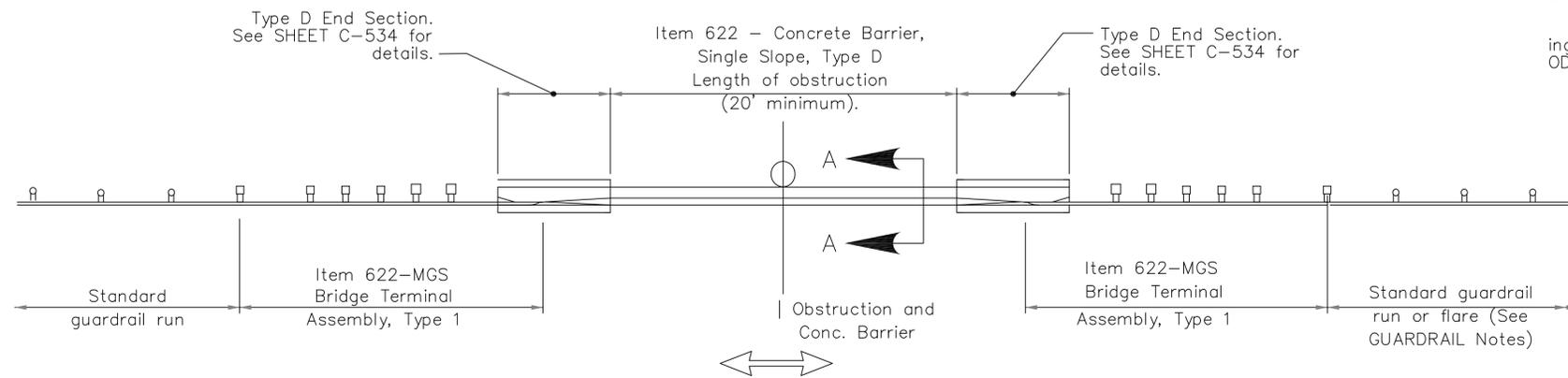
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SECTION A-A



Directional Travel where no trailing guardrail is used.



Bi-directional Travel or Directional Travel where trailing guardrail is used.

TYPICAL INSTALLATIONS CONCRETE BARRIER AT OBSTRUCTIONS

NOTES

GENERAL: Single Slope Concrete Barrier, Type D, may be cast-in-place or slip-formed. See ODOT SCD RM-4.3 for other standard barrier types and any details not shown, including materials, adjoining pavement, and doweling details. Longitudinal steel is not required when top width of barrier is 12" or greater.

CONTRACTION JOINTS: Maximum allowable spacing of unsealed joints is 20' throughout the run of the barrier. Construct joints by using metal inserts inside the forms, preformed full width joint filler, a grooving tool, or by sawing. Inserts, tooled or sawed joints will have a 3" minimum depth.

Construct all joints for the full height of the barrier. Saw as soon as curing will allow to prevent spalling. When used in conjunction with concrete pavement, match joints to those in the concrete pavement but not exceeding the maximum allowable spacing.

ADJOINING PAVEMENT: When the barrier is constructed in conjunction with new asphalt pavement, place it directly on the intermediate course. Construct the surface course directly against the barrier. Set barrier placed on existing pavement with a continuous wedge of surface material tapering from a 1" minimum thickness at the toe of the barrier to zero. For unidirectional installations, construct the wedge on the traveled way side and the width may be reduced to 12" minimum.

When the barrier is constructed in conjunction with new concrete pavement, place it directly on the base material. Construct the concrete slab against the barrier.

Barrier may be placed on top of existing concrete pavement and doweled as shown in DOWELING DETAILS (see SHEET C-533). When pavement is to be constructed on one side of the barrier only, then compacted soil on the opposite side must be placed against the barrier at a minimum height of 3".

SEALING JOINTS: Use a butt longitudinal joint between the barrier and any adjoining concrete pavement sealed with ODOT CMS 705.04 joint sealer.

CONSTRUCTION JOINTS: Barrier runs with abutting vertical surfaces at either required or permissible construction joints are to be doweled to each other by use of 3/4" dia. by 18" long epoxy coated deformed dowel bars as per ODOT CMS 622.02. Bars are to be placed as shown on the DOWEL BAR PLACEMENT detail on SHEET C-533.

RACEWAYS: Raceways on Type D barriers are typically not embedded within the barrier, but are mounted outside of it on the back side and not exposed to traffic.

END SECTIONS: End Sections are used when barrier connects to Bridge Terminal assemblies, Guardrail runs, or Impact Attenuators. See SHEET C-534 for Type D End Section details.

END ANCHORAGE: At other barrier ends, or at vertical construction joints, construct a reinforced End Anchorage as shown on SHEET C-533.

GUARDRAIL: For Bridge Terminal Assembly, Type 1, details and connections, see SHEET C-537.

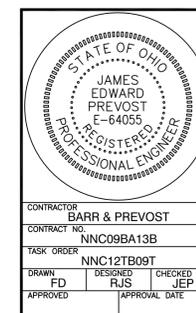
Barrier installations that cannot be constructed at the normal guardrail offset and are to be connected to the approach or trailing guardrail runs shall have a 25:1 guardrail taper to meet the existing or normal guardrail offset.

Installations that are not to be connected to the approach or trailing guardrail runs must include the standard guardrail flare as per ODOT SCD GR-5.1.

NOTES:

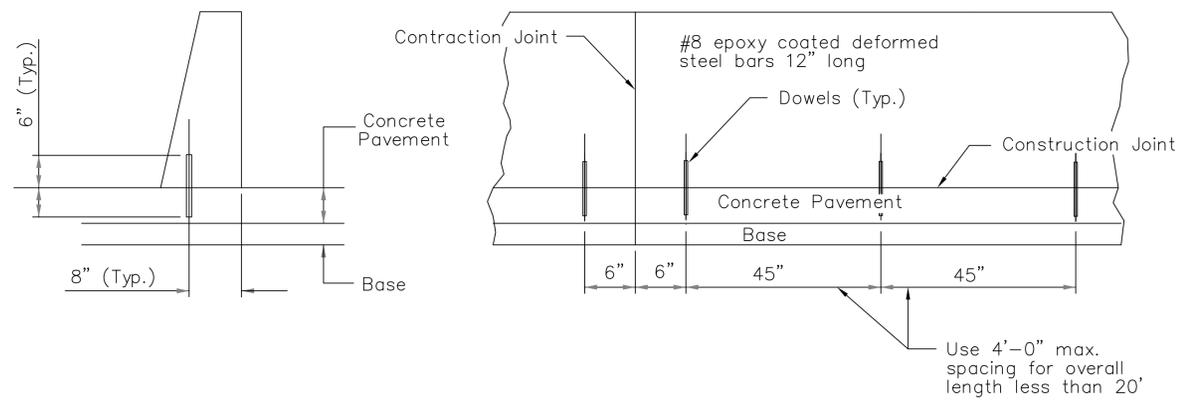
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| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 BARRIER MISCELLANEOUS DETAILS | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
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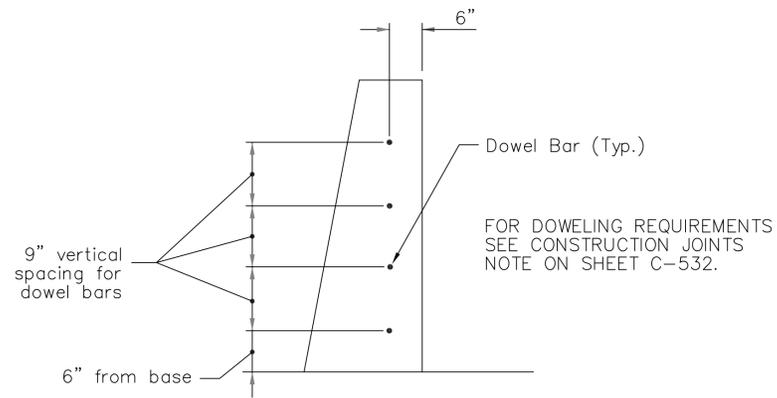


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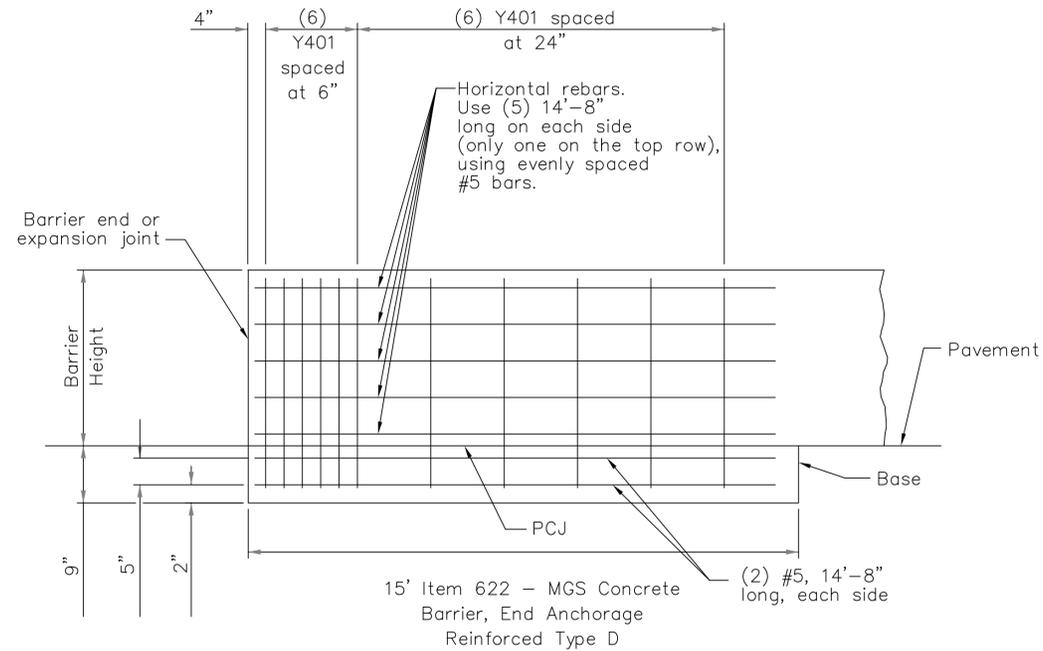
ELEVATION

DOWELING DETAILS

See ADJOINING PAVEMENT Notes on Sheet C-532



DOWEL BAR PLACEMENT

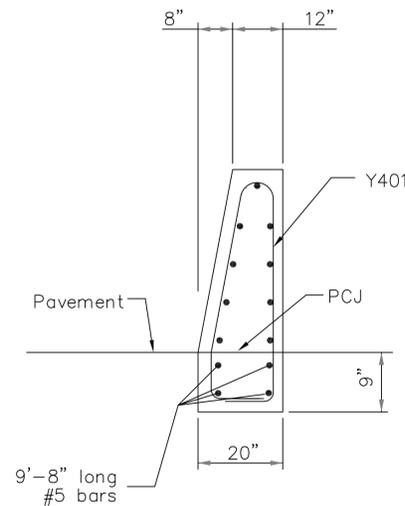


ELEVATION

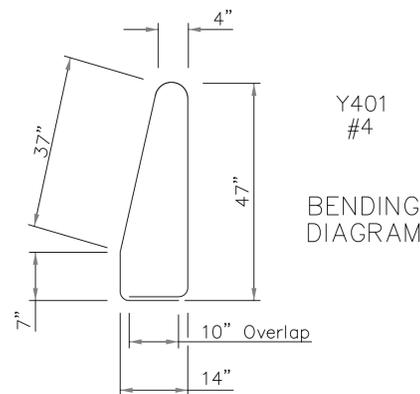
REINFORCED END ANCHORAGES are required at the ends of concrete barrier runs and at interruptions in barrier caused by expansion joints. When barrier does not abut another barrier run, construct the last 15' using the END ANCHORAGE Detail as shown here.
 At expansion joints, construct an End Anchorage on both sides of joint, with a maximum gap of 2" for the open joint. The maximum expansion joint spacing shall be 800'. This anchorage is not needed at construction joints, provide dowel bar connections instead. See CONSTRUCTION JOINTS Note on Sheet C-532.

END ANCHORAGE

See Notes on Sheet C-532.



SECTION



Y401 #4
BENDING DIAGRAM

NOTES:

- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

| CHG | NUM | DESCRIPTION | APP/DATE |
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FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

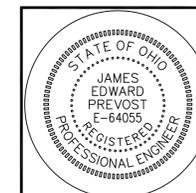
BARRIER
 MISCELLANEOUS DETAILS

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AREA: NASA GLENN RESEARCH CENTER SHEET OF

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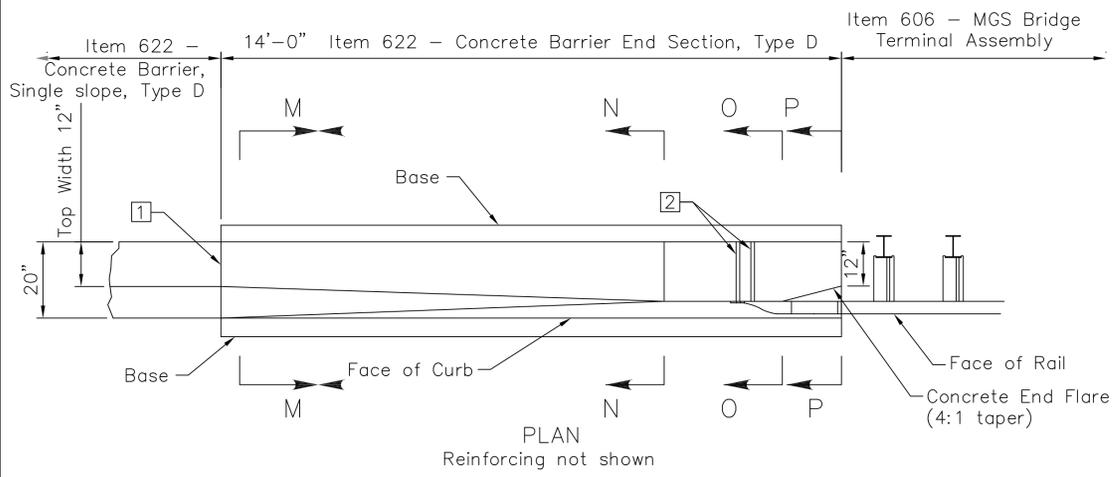
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| CONTRACT NO: NNC09BA13B | | |
| TASK ORDER: NNC12TB09T | | |
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| APPROVED: | APPROVAL DATE: | |

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| TYPE D STEEL LIST | | | | |
|-------------------|-----|----------|-------------|-----------------------|
| Mark | Bar | Shape | No. | Length |
| X521 | #5 | Bent | 3 | 5'-6" |
| X522 | #5 | Straight | 7 | 5'-6" |
| X523 | #5 | Straight | 8 | 11'-1" |
| X524 | #5 | Straight | 2 | 9'-8" |
| Y621 | #6 | Bent | 10 | 3'-11" |
| Y622 | #6 | Bent | series of 5 | Varies 4'-3" to 5'-3" |
| Y623 | #6 | Bent | series of 5 | Varies 4'-3" to 5'-3" |

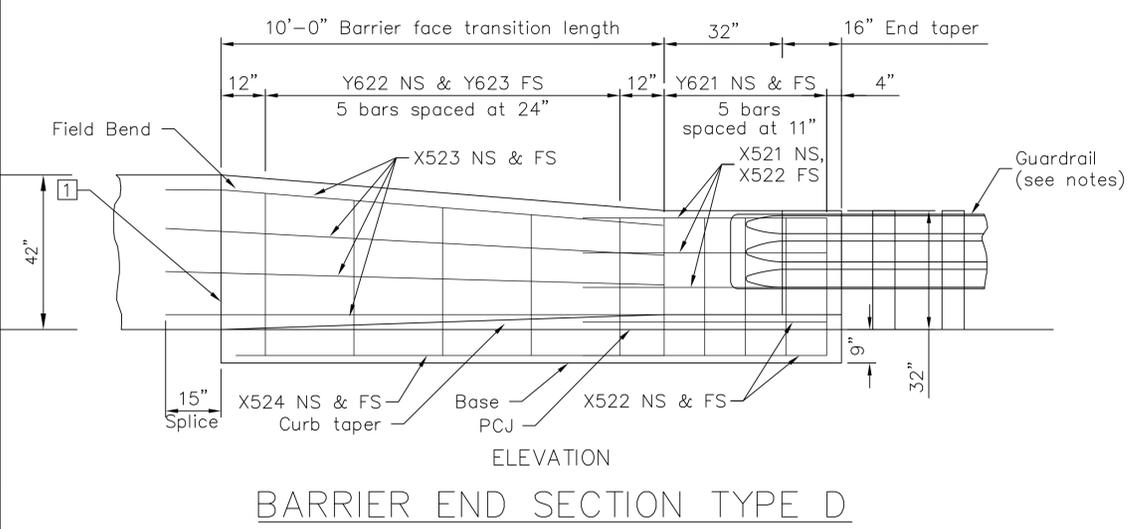
GENERAL: This End Section is to be used in roadside applications when traffic is only on one side. This section attaches to a Single Slope Concrete Barrier, Type D as shown on Sheet C-534. See ODOT SCD RM-4.3 for Single Slope Barrier materials and other details. Provide 2" concrete over rebar, except as noted.

GUARDRAIL: For Bridge Terminal Assembly and attachment details see Sheets C-516 through C-518 (ODOT SCD GR-3.5 if connecting to Type 5 Guardrail). Information on Impact Attenuators is found in the ODOT Location and Design Manual, Volume 1, Section 603.

BARRIER FACE TRANSITIONS: To prevent vehicle snagging, a smooth transition from vertical face to single slope barrier faces is made over a 10' distance.

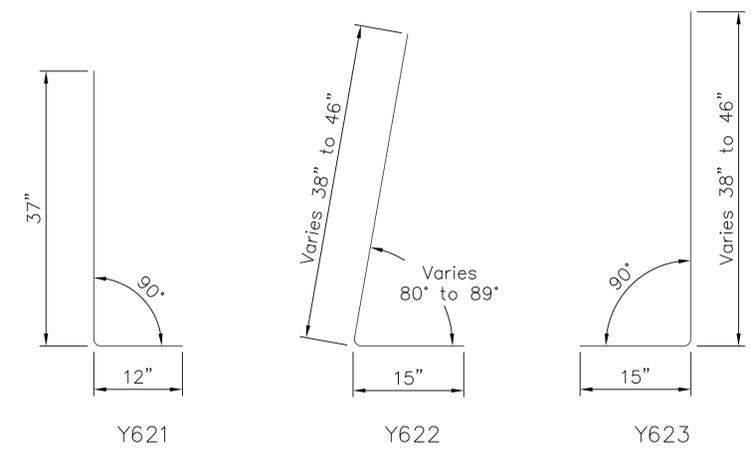
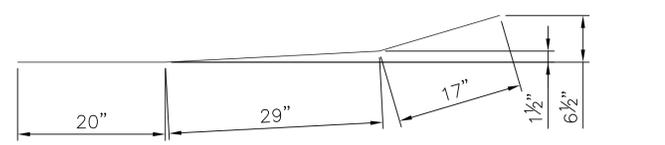
PCJ: Permissible Construction Joint.

NOTES:
1. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

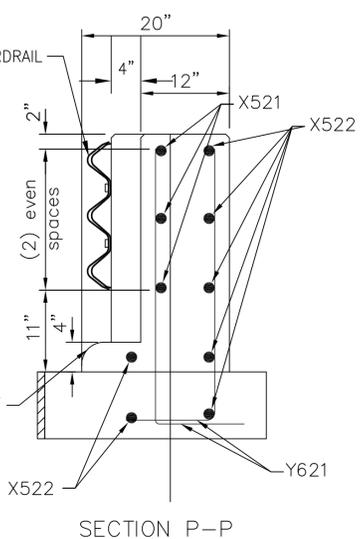
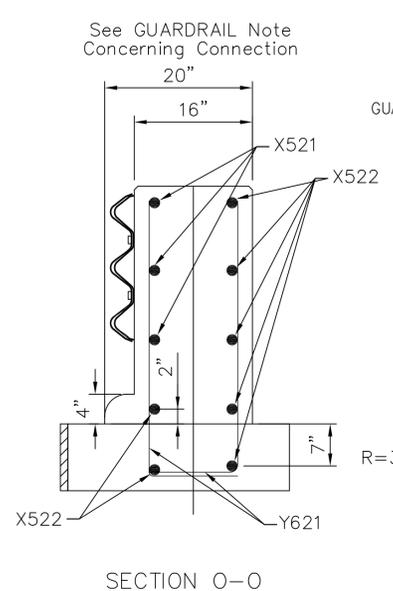
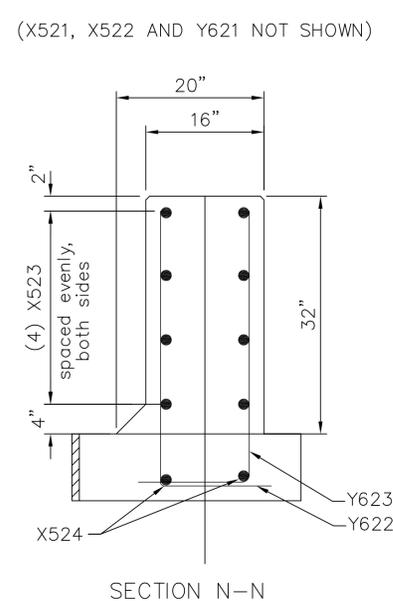
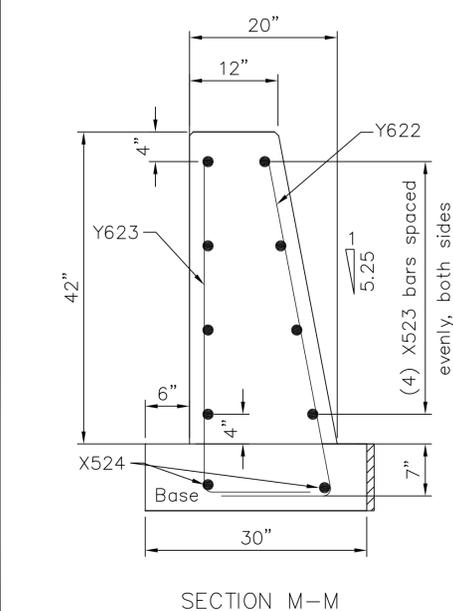


NS = Near Side
FS = Far Side

- 1 Contraction Joint. See NOTES on ODOT SCD RM-4.3. Provide rebar cover of 3 1/2".
- 2 Construct 1 1/4" bolt hole pattern as shown on the Bridge Terminal Assembly Standard Drawings (See Sheets C-537 through C-539).



BENDING DIAGRAMS

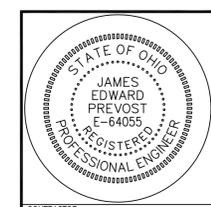


SECTION M-M

SECTION N-N

SECTION O-O

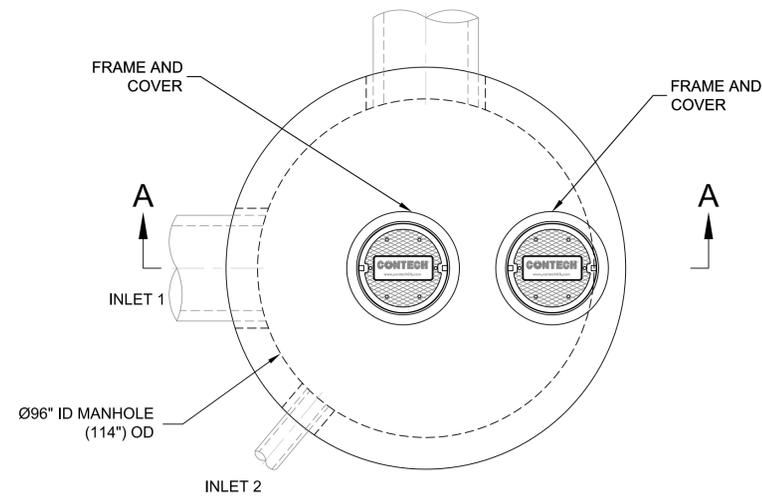
SECTION P-P



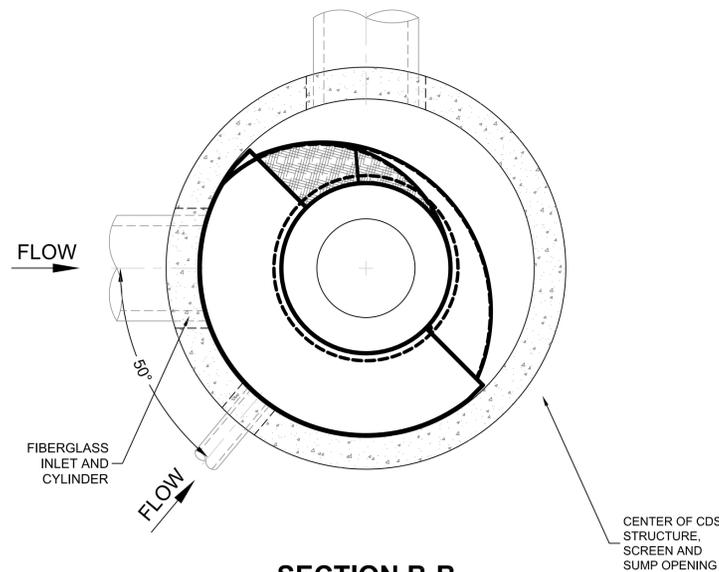
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| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| CONTRACTOR: BARR & PREVOST | RELEASE APPROVAL: | DATE: |
| CONTRACT NO: NNC09BA13B | RELEASE APPROVAL: | DATE: |
| TASK ORDER: NNC12TB09T | RELEASE APPROVAL: | DATE: |
| DRAWN: FD | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: | APPROVAL DATE: | RELEASE STATUS: |

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|---------------------------|------------------|---------------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 BARRIER MISCELLANEOUS DETAILS | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 534 | |
| AREA: NASA GLENN RESEARCH CENTER | SHEET OF | | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: NONE | OFFICIAL DATE: 01/29/2014 | | |

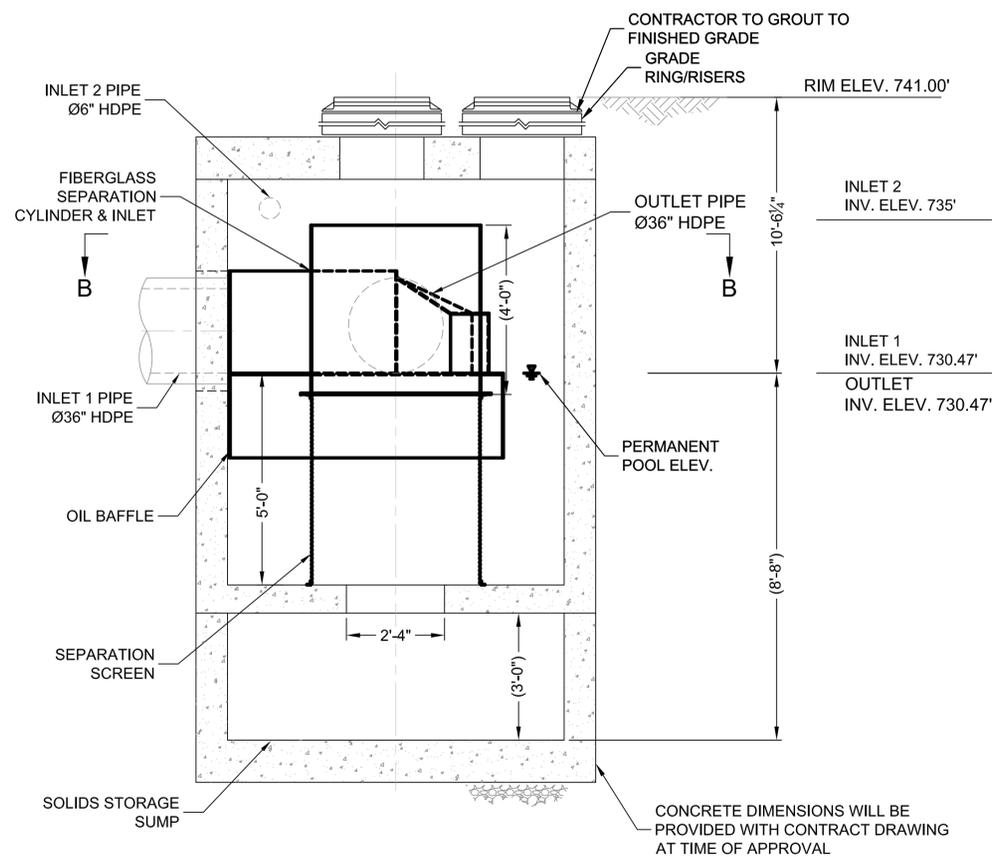
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PLAN VIEW



SECTION B-B



SECTION A-A

MATERIALS LIST - PROVIDED BY CONTECH

| COUNT | DESCRIPTION | INSTALLED BY |
|-------|-----------------------------|--------------|
| 1 | FIBERGLASS INLET & CYLINDER | CONTECH |
| 1 | 2400 MICRON SEP. SCREEN | CONTECH |
| 1 | SEALANT FOR JOINTS | CONTRACTOR |
| 1 | GRADE RINGS/ RISERS | CONTRACTOR |
| 2 | Ø24" GRADE RINGS/ RISERS | CONTRACTOR |

SITE DESIGN DATA

| | |
|----------------------------|-----------|
| WATER QUALITY FLOW RATE | 7.30 CFS |
| PEAK FLOW RATE | 28.46 CFS |
| RETURN PERIOD OF PEAK FLOW | 25 YRS |

GENERAL NOTES

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
- CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE AND CASTINGS SHALL MEET AASHTO HS20 LOAD RATING.
- PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

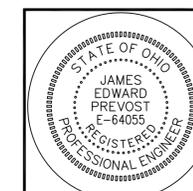
INSTALLATION NOTES

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
- CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

STRUCTURE WEIGHT

APPROXIMATE HEAVIEST PICK = T.B.D. LBS.

CONTECH
PROPOSAL
DRAWING



| DRAWING/DESIGN STATUS: | | | |
|------------------------|-----------------------|-----------|-------------|
| FOR BID - 01/29/2014 | | | |
| DRAWING MANAGEMENT | | | |
| SYSTEM: SSWR | SUB-SYS: | FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | | |
| DR: | DES: | | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | | |
| RELEASE APPROVAL: | DATE: | | |
| RELEASE APPROVAL: | DATE: | | |
| RELEASE APPROVAL: | DATE: | | |
| RELEASE STATUS: | | | |

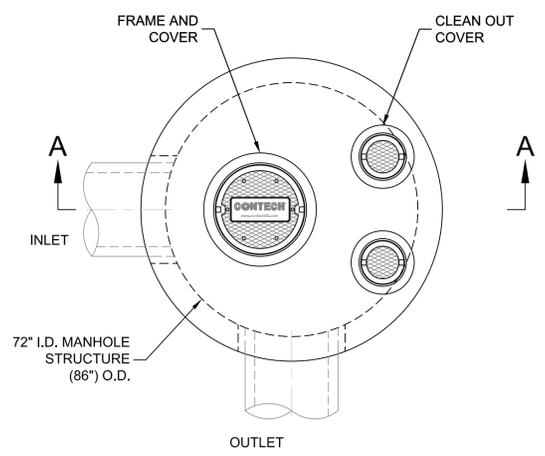
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| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| INDUSTRIAL WASTE BASIN NORTH INLET MISCELLANEOUS DETAILS | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISC/TYP SEQ |
| CD STRM - COF20196 | | - C - 535 | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: NONE | OFFICIAL DATE: 01/29/2014 | | |

WATER QUALITY UNIT DETAIL
CONTECH MODEL NO. CDS4045-8-C
(SEE PLAN & PROFILE SHEET C-107)

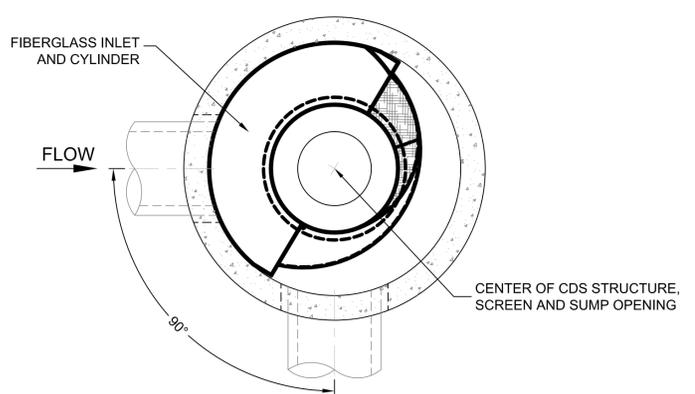
NOTES:

- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

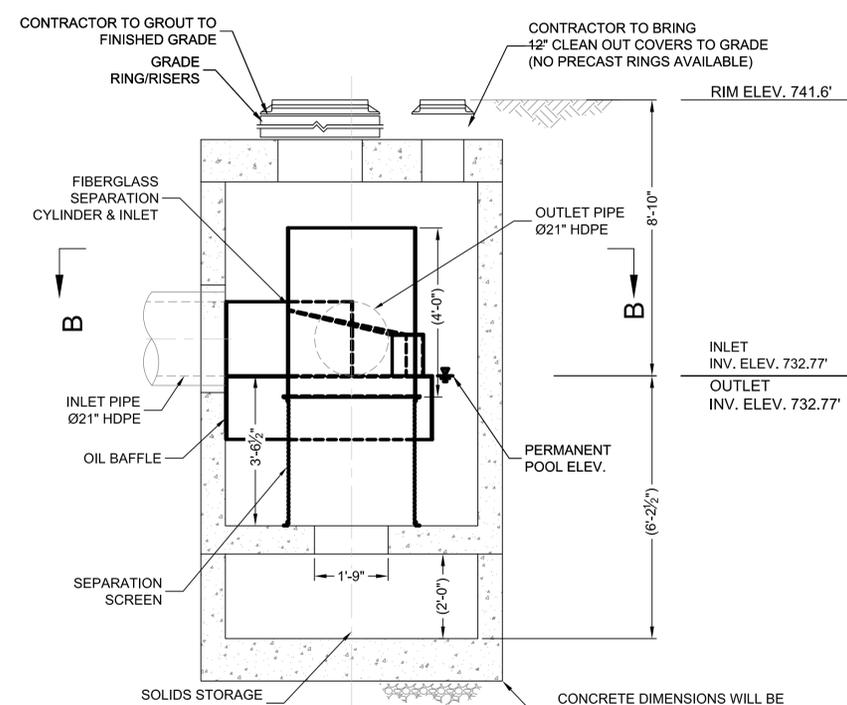
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PLAN VIEW



SECTION B-B



SECTION A-A

MATERIALS LIST - PROVIDED BY CONTECH

| COUNT | DESCRIPTION | INSTALLED BY |
|-------|-----------------------------|--------------|
| 1 | FIBERGLASS INLET & CYLINDER | CONTECH |
| 1 | 2400 MICRON SEP. SCREEN | CONTECH |
| 1 | SEALANT FOR JOINTS | CONTRACTOR |
| 1 | GRADE RINGS/ RISERS | CONTRACTOR |
| 1 | Ø24" FRAME AND COVER | CONTRACTOR |
| 1 | Ø12"x4" CLEAN OUT COVER | CONTRACTOR |

SITE DESIGN DATA

| | |
|----------------------------|-----------|
| WATER QUALITY FLOW RATE | 2.87 CFS |
| PEAK FLOW RATE | 10.65 CFS |
| RETURN PERIOD OF PEAK FLOW | 25 YRS |

- GENERAL NOTES**
- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
 - DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
 - FOR SITE SPECIFIC DRAWINGS WITH DETAILED DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
 - CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
 - STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION
 - PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

- INSTALLATION NOTES**
- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
 - CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
 - CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
 - CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
 - CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK = T.B.D. LBS.



WATER QUALITY UNIT DETAIL
CONTECH MODEL NO. CDS3030-6-C
(SEE PLAN & PROFILE SHEET C-120)

NOTES:
1. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

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| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

INDUSTRIAL WASTE BASIN SOUTH INLET
MISCELLANEOUS DETAILS

| | | | | |
|----------------------------------|---------------------------|------------------|------|---------|
| SIZE | BLDG/SYS | PROJECT ID | DISC | TYP SEQ |
| CD STRM - COF20196 | | - C - 536 | | |
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| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER | |
| SCALE: NONE | OFFICIAL DATE: 01/29/2014 | | | |

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FOR BID - 01/29/2014

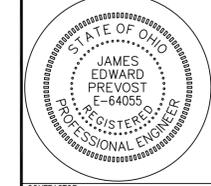
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SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS

NASA APPROVALS
DR: | DES: |
D.ENG: | PROJ. MGR: J. SCHULTZ

RELEASE APPROVAL: | DATE: |
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RELEASE APPROVAL: | DATE: |
RELEASE STATUS: |

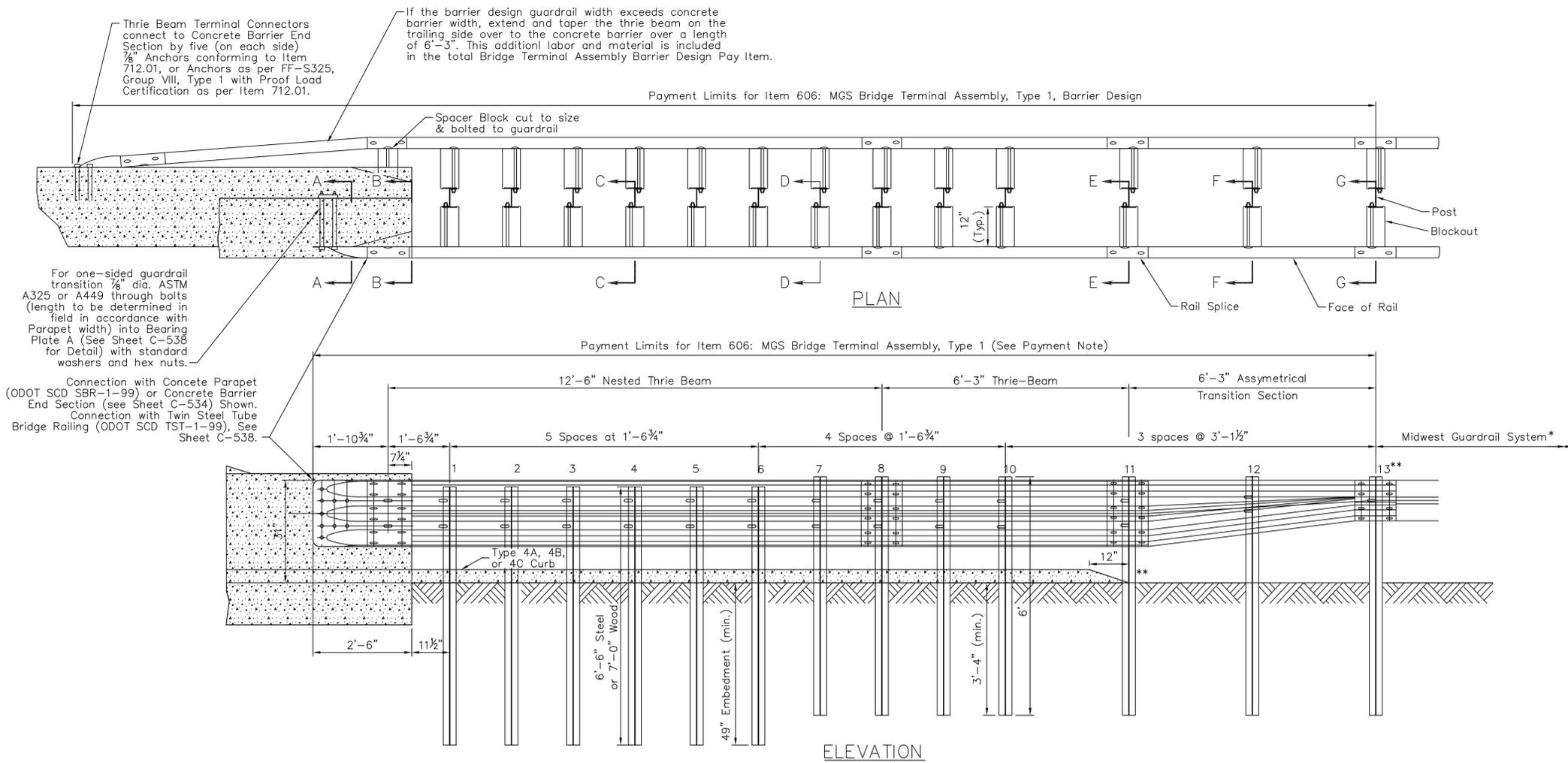
CONTRACTOR: BARR & PREVOST
CONTRACT NO: NNC09BA13B
TASK ORDER: NNC12TB09T

DRAWN: RTF | DESIGNED: RJS | CHECKED: JEP | APPROVED: |
APPROVAL DATE: |



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NOTES:
 1. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.



NOTES

GENERAL: For additional rail details, see Sheets C-516 through C-518. For barrier guardrail details see ODOT SCD MGS-2.1. See Sheet 2 for Sections (single sided BTA shown).

APPLICATION: Use Type 1 MGS Bridge Terminal Assembly to connect guardrail runs to bridges having deflector Parapet Type Bridge Railing (see Structural Engineering's ODOT SCD BR-1) and for runs to the approach ends of Concrete Barrier (see Sheet-534).

This BTA should also be used to connect guardrail runs to bridges with Twin Steel Tube Railing (see Structural Engineering's ODOT SCD TST-1-99). Connection details for the TST are shown on Page 2.

THRIE BEAM: An 18'-9" Section of Thrie beam may be substituted for one of the 12'-6" panels and the 6'-3" section as shown.

THRIE BEAM TRANSITION: Assymetrical W-Beam to Thrie Beam transition panel shall be 10 gauge.

POSTS: Use standard steel or 6"x8"x72" wood posts per SCD MGS-2.1 for Posts No. 7-13. Posts may be set in drilled holes or driven to grade. Posts No. 1-6 are 6'-6" W6x9 steel or 6"x8"x84" wood.

Use the same post material throughout the length of the transition unless otherwise specified in the plans or permitted by the Engineer (steel posts shown in this drawing).

Wood posts shall be fabricated and pressure-treated for approved species as per ODOT CMS 710.12. Bore bolt holes and, if required, trim the tops of posts after the posts are set.

BLOCKOUTS: Use 6"x12"x19" (or 6"x12"x22") wood blockouts at Posts No. 1-12. The standard MGS 6"x12"x14" blockout is used at Post 13. Approved Alternate Blockouts can be found on the Office of Roadway Engineering's website. Steel Blockouts are not permitted.

FLARED GUARDRAIL: The MGS guardrail should be tangential within 25 ft. of the BTA.

CURB: Type 4A, 4B, or 4C Curb per ODOT SCD BP-5.1 is required under the thrie-beam portion of this transition when connecting to concrete barrier or parapet, but shall not extend past Post No. 11. Curb is NOT required when connecting to TST Bridge Rail.

****** Where curb must extend upstream of Post No. 11 for drainage purposes, an extra 12'-6" panel of 12 gauge w-beam must be nested prior to the transition (upstream of Post No. 13). This added component shall be included as incidental to the cost of the BTA.

***** Place the first post of the MGS 3'-1 1/2" past the BTA, then every 6'-3" thereafter to keep posts offset from the rail splices. A minimum of 12'-6" of MGS Guardrail should be placed between the BTA and end anchor.

| CHG | NUM | DESCRIPTION | APP/DATE |
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| REVISIONS | | | |

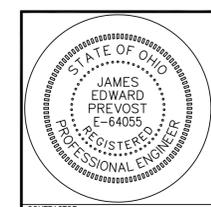
CAD DRAWING - DO NOT REVISE MANUALLY

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

GUARDRAIL
MISCELLANEOUS DETAILS

| | | | | |
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| SIZE | BLDG/SYS | PROJECT ID | DISCP | TYP SEQ |
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| SCALE: NONE | OFFICIAL DATE: 01/29/2014 | | | |

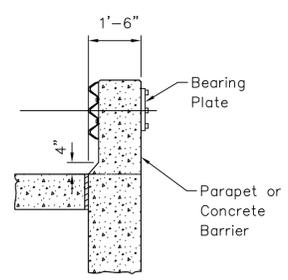


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FOR BID - 01/29/2014

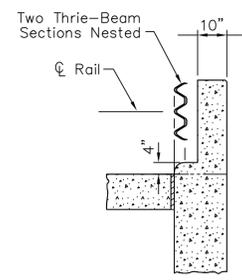
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| DR: | DES: | | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | | |
| RELEASE APPROVAL: | DATE: | | |
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| RELEASE STATUS: | | | |

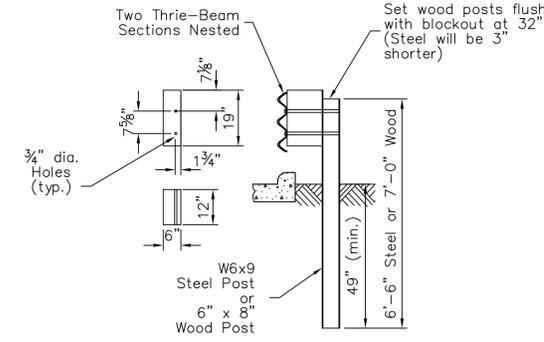
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| CONTRACTOR: BARR & PREVOST | CONTRACT NO: NNC09BA13B | TASK ORDER: NNC12TB09T |
| DRAWN: FP | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: | APPROVAL DATE: | |



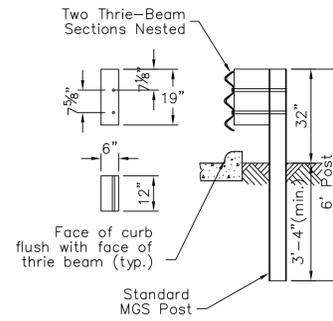
SECTION A-A



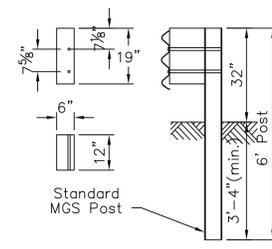
SECTION B-B



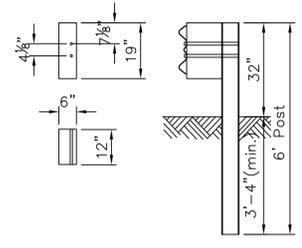
SECTION C-C



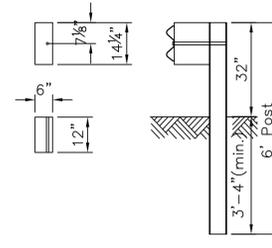
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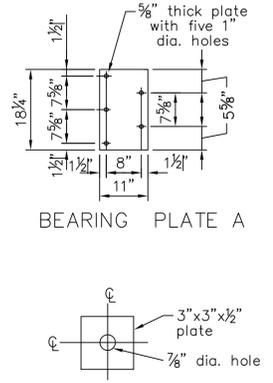
SECTION E-E



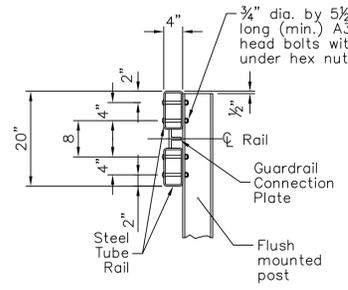
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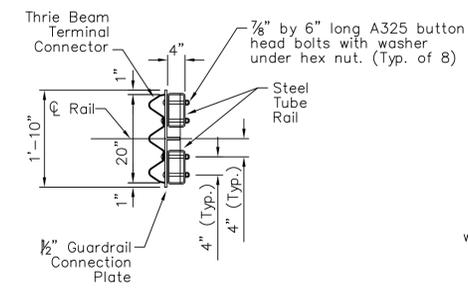
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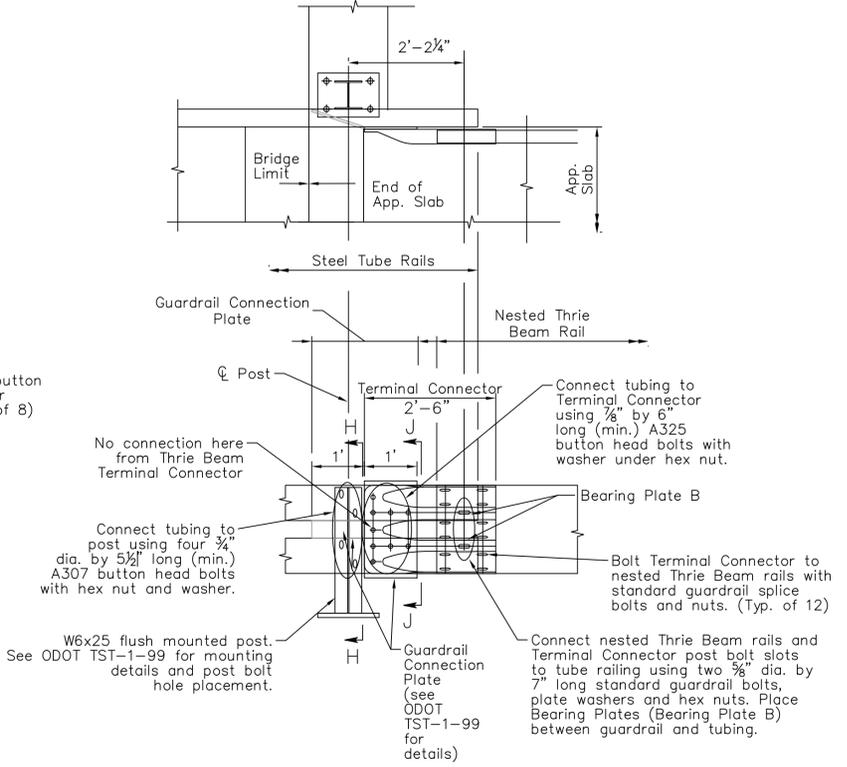
BEARING PLATE A



SECTION H-H
Section through Tubing at Post



SECTION J-J
Section through Tubing at Terminal Connector



CONNECTION DETAILS TO CONNECT WITH TWIN STEEL TUBE BRIDGE RAILING (SEE SCD TST-1-99)



BEARING PLATE B
AASHTO/AGC/ARTBA Standardized Hardware Guide part FWR09

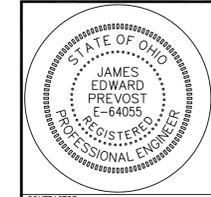
- NOTES:
1. REFER TO ODOT STD. DWG. MGS-3.1.
 2. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

| CHG | NUM | DESCRIPTION | APP/DATE |
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| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |

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JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1
GUARDRAIL MISCELLANEOUS DETAILS

| | | | | |
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| SIZE | BLDG/SYS | PROJECT ID | DISCP | TYP SEQ |
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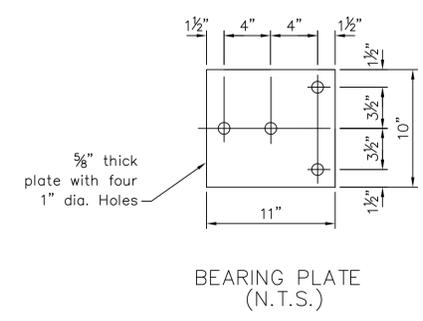
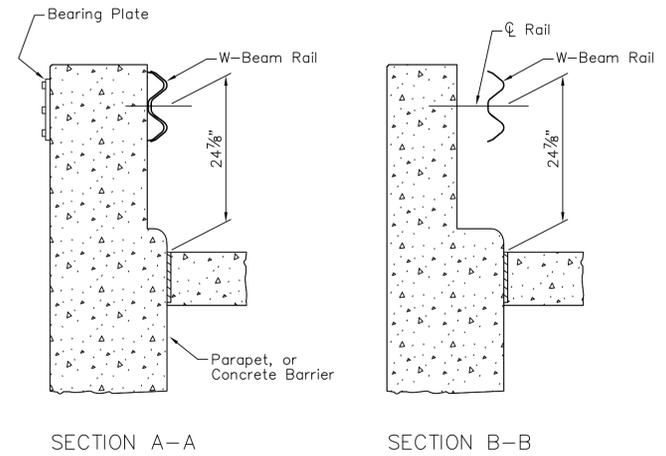
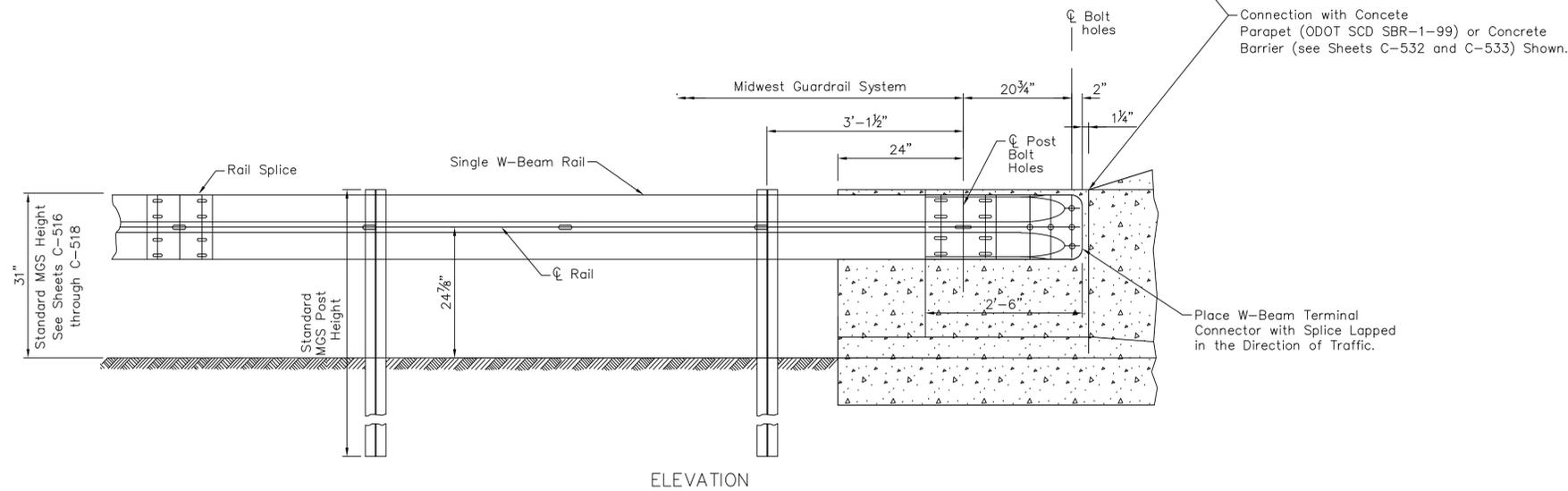
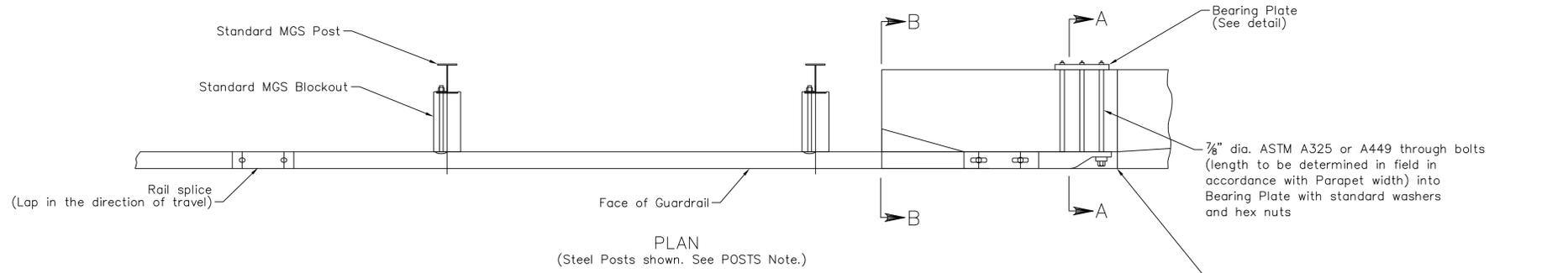


DRAWING/DESIGN STATUS:
FOR BID - 01/29/2014

| | | |
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| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |

| | | |
|----------------------------|-------------------|-----------------|
| CONTRACTOR: BARR & PREVOST | RELEASE APPROVAL: | DATE: |
| CONTRACT NO: NNC09BA13B | RELEASE APPROVAL: | DATE: |
| TASK ORDER: NNC12TB09T | RELEASE APPROVAL: | DATE: |
| DRAWN: FP | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: | APPROVAL DATE: | RELEASE STATUS: |

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NOTES

GENERAL: For additional rail and post details, see Sheets C-516 through C-518.

APPLICATION: Use Type 2 MGS Bridge Terminal Assembly to connect guardrail runs to the trailing end of Parapets or Concrete Barriers (see Sheet C-534 for Concrete Barrier) on one-directional Roadways. Do not use if located within clear zone of opposing traffic.

POST: See ODOT SCD MGS-2.1 for standard post details.

BLOCKOUTS: See ODOT SCD MGS-2.1 for standard blockout details.

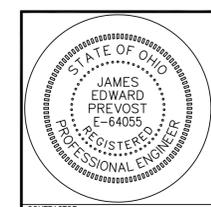
FLARED GUARDRAIL: Keep the first panel of guardrail adjacent to the transition tangential to the roadway before applying standard guardrail flares.

NOTES:

- REFER TO ODOT STD. DWG. MGS-3.2.
- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

| CHG | NUM | DESCRIPTION | APP/DATE |
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| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| GUARDRAIL MISCELLANEOUS DETAILS | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 539 | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
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| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| CONTRACTOR: BARR & PREVOST | RELEASE APPROVAL: | DATE: |
| CONTRACT NO: NNC09BA13B | RELEASE APPROVAL: | DATE: |
| TASK ORDER: NNC12TB09T | RELEASE APPROVAL: | DATE: |
| DRAWN: FP | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: | APPROVAL DATE: | RELEASE STATUS: |

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6

5

4

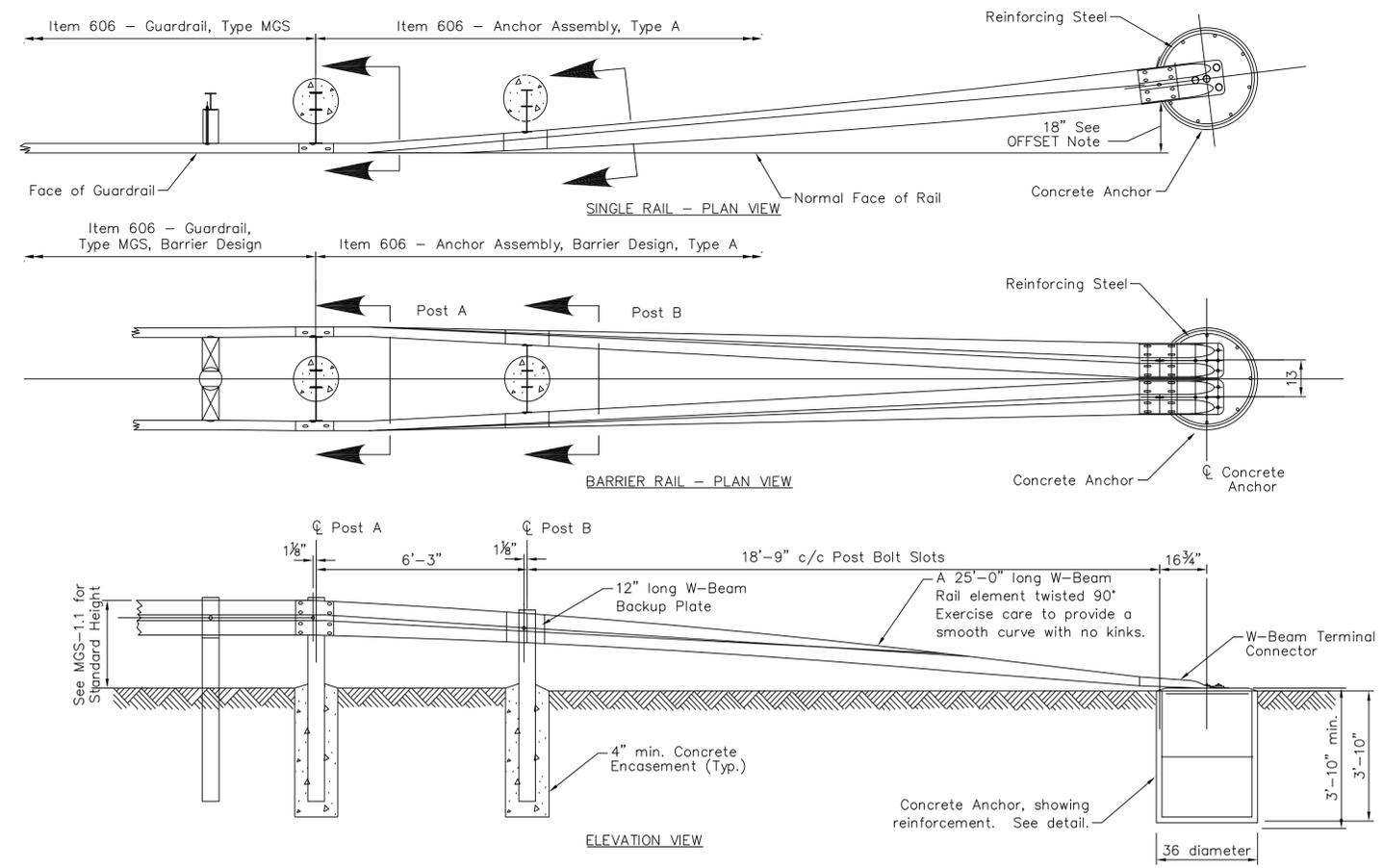
3

2

1

NOTES:

1. REFER TO ODOT STD. DWG. MGS-4.1.
2. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.



NOTES

APPLICATION: On Non-NHS roadways it may be used in the clear zone, with restrictions. See Section 603, Location & Design Manual, Volume 1.

GENERAL: For details not shown, see sheets C-516 through C-518 and other Drawings pertaining to specific guardrail type. Galvanize all steel parts.

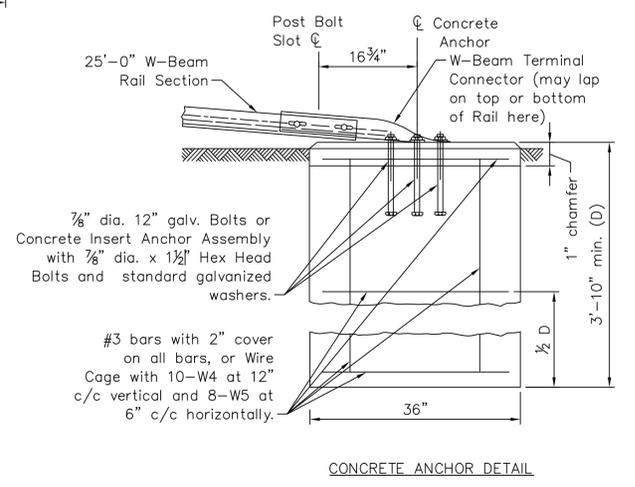
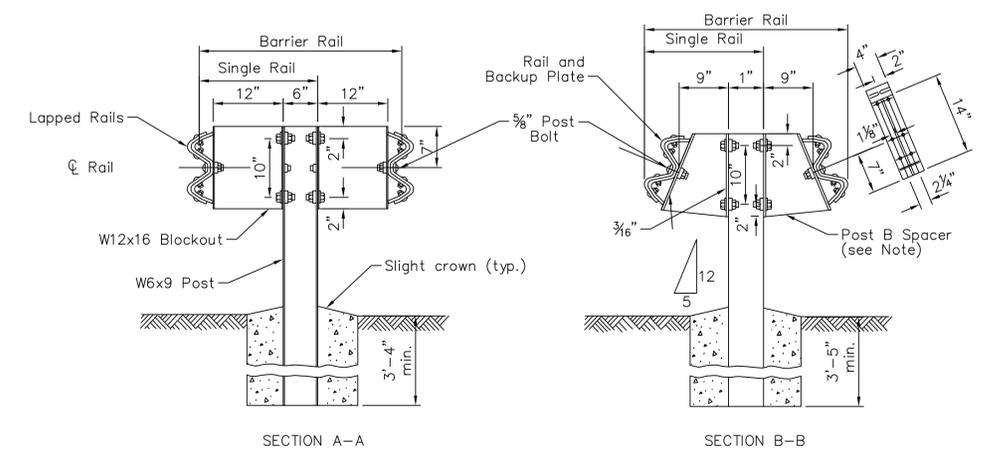
OFFSETS: The 18" flare offset from normal face of rail, shown in the plan view (for single rail installations) will be utilized only where shoulder is insufficient for providing standard flares.

POSTS: Steel posts W6x9 are shown, but W6x8.5 posts are also permitted. See sheets C-516 through C-518 for additional embedment details.

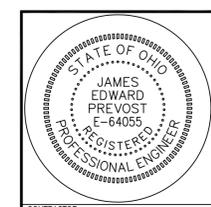
SPACERS: Post B Spacers shall be made of 3/16" Steel Plate as specified in ODOT CMS 710.15 or two sections of W6x9 or W8x10 cut in the web (see dashed line on POST B Detail) and welded together on both sides.
All steel spacers and posts may be provided with additional bolt holes so that these items will not be required to be made right and left handed.
Spacers shall be fastened to Posts with two 3/8" hex head bolts and nuts with standard washers on both sides.

WASHERS: All washers indicated on this drawing are standard galvanized steel of the appropriate size.

CONCRETE ANCHOR: Form top 4" of anchor and slope the top to conform to slope of the adjacent ground. The 36" diameter anchor may be replaced by a 2'-6" square anchor at the contractor's option.



| CHG | NUM | DESCRIPTION | APP/DATE |
|---|---------------------------|------------------|--------------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| GUARDRAIL MISCELLANEOUS DETAILS | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISC/TYP SEQ |
| CD STRM | - COF20196 | - C - 540 | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: NONE | OFFICIAL DATE: 01/29/2014 | | |



DRAWING/DESIGN STATUS:
FOR BID - 01/29/2014

| | | |
|-----------------------|-----------------------|-------------|
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE STATUS: | | |

| | | |
|----------------------------|-------------------------|--------------|
| CONTRACTOR: BARR & PREVOST | CONTRACT NO: NNC09BA13B | |
| TASK ORDER: NNC12TB09T | | |
| DRAWN: FP | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: | APPROVAL DATE: | |

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8 7 6 5 4 3 2 1

NOTES:
 1. REFER TO ODOT STD. DWG. MGS-4.2.
 2. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

NOTES

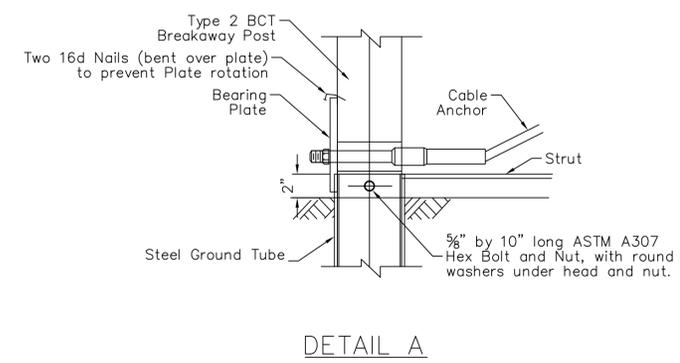
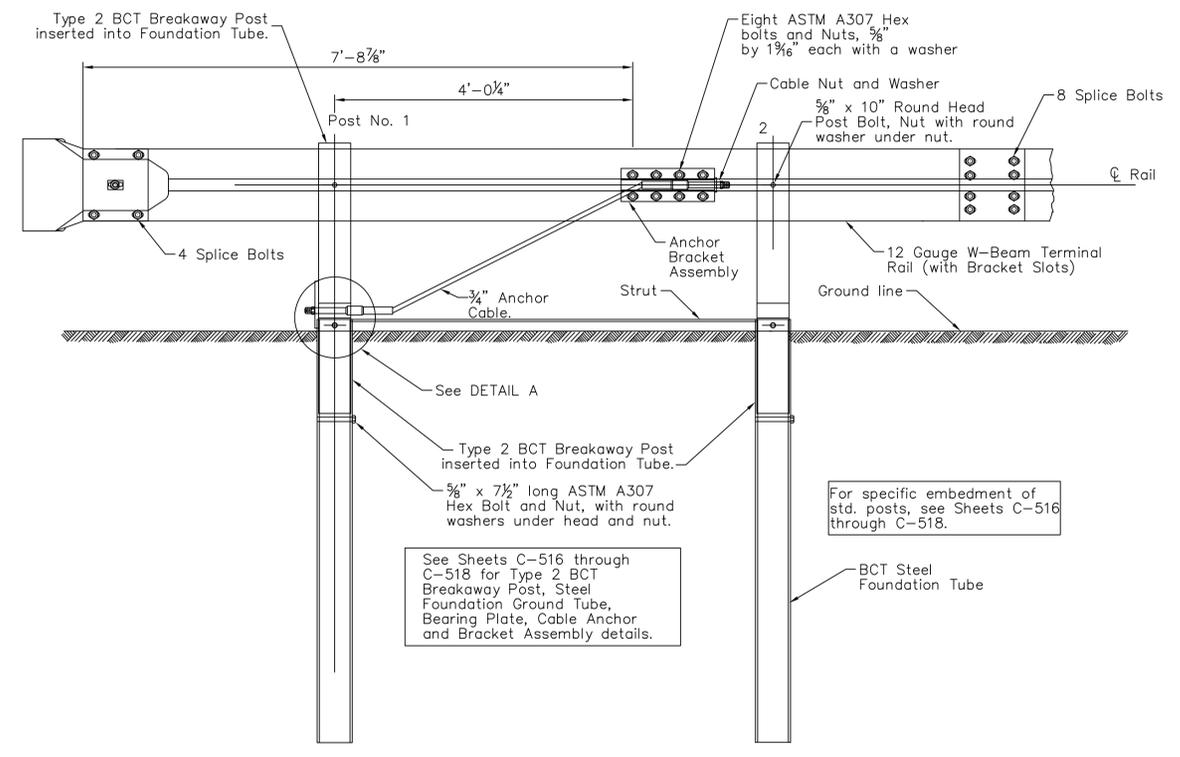
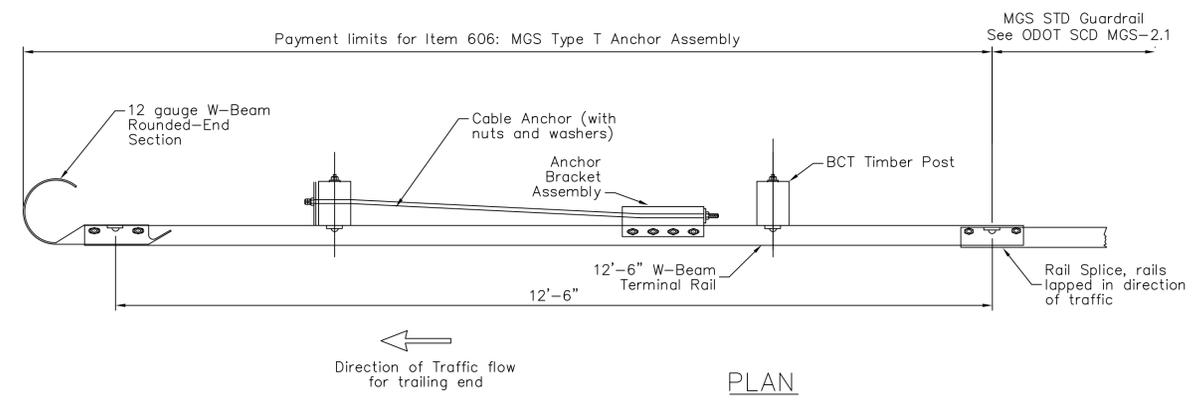
Use Type T Anchor Assemblies on the trailing end of guardrail runs, located outside of the clear zone of opposing traffic. The assembly is 12'-6" long, none of which can be considered the Length of Need for the guardrail run.

For termination requirements at driveways, and side road approaches and Terminals at Structures, see Location & Design Manual, Volume 1, Figure 603-3.

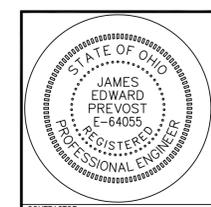
See Sheets C-516 through C-518 for parts used on this anchor, including the Type 2 BCT Breakaway Posts, Steel Ground Foundation Tube, Bearing Plate, Cable Anchor, Bracket Assembly, and Rounded W-Beam End Section.

Bearing Plate is ASTM A709 Grade 36. Steel Ground Foundation Tube shall be ASTM A500, Grade B, and meet ODOT CMS 707.10. All angles, channels and plates shall meet ODOT CMS 711.01. All structural steel shall be galvanized as specified in ODOT CMS 711.02. All bolt washers indicated are standard galvanized steel of the appropriate size.

For components on this anchor that are not detailed on Sheets C-516 through C-518, see part descriptions in the AASHTO/AGC/ARTBA Standardized Hardware Guide.



| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |



DRAWING/DESIGN STATUS:
FOR BID - 01/29/2014

DRAWING MANAGEMENT
 SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS

NASA APPROVALS
 DR: | DES: |
 D.ENG: | PROJ. MGR: J. SCHULTZ

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1
 GUARDRAIL
 MISCELLANEOUS DETAILS

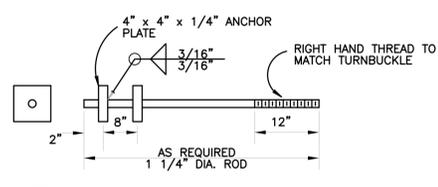
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|----------------------------|-------------------|-----------------|
| CONTRACTOR: BARR & PREVOST | RELEASE APPROVAL: | DATE: |
| CONTRACT NO: NNC09BA13B | RELEASE APPROVAL: | DATE: |
| TASK ORDER: NNC12TB09T | RELEASE APPROVAL: | DATE: |
| DRAWN: FP | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: | APPROVAL DATE: | RELEASE STATUS: |

| | | | | |
|----------------------------------|---------------------------|------------------|--------|----------|
| SIZE: | BLDG/SYS: | PROJECT ID: | DISCP: | TYP SEQ: |
| CD STRM - COF20196 | | - C - 541 | | |
| AREA: NASA GLENN RESEARCH CENTER | SHEET OF | | | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION: | VER: | |
| SCALE: NONE | OFFICIAL DATE: 01/29/2014 | | | |

8 7 6 5 4 3 2 1

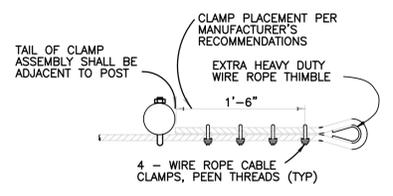
PROPERTY OF UNITED STATES GOVERNMENT - FOR OFFICIAL USE ONLY. Not to be distributed outside of the project without the express written permission of the project manager.

- GENERAL NOTES**
- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - DRAWING DETAILS ARE RELATED TO C-525 FOR CRASH RATED FENCE REPLACEMENT AT OUTFALL NO. 8.
- CONSTRUCTION NOTES**
- CABLES SHALL BE CONTINUOUS FROM DEADMAN TO DEADMAN. NO SPLICES IN CABLE SHALL BE ALLOWED. CABLE BARRIER SHALL BE INSTALLED BETWEEN FENCE POSTS AND FENCE FABRIC AS PER PLANS. U-BOLTS ON LINE POSTS SHALL BE INSTALLED PERPENDICULAR TO THE STRANDS OF THE WIRE ROPE AND SHALL BE TIGHTENED AFTER SAG IN CABLE BARRIER HAS BEEN REMOVED.
 - CABLE BARRIER SHALL BE U.S. DOMESTIC 3/4 INCH 6X19 CLASS WIRE ROPE, REGULAR LAY, EXTRA IMPROVED PLOW STEEL (EIPS), INDEPENDENT WIRE ROPE CORE, (IWRC), CLASS A GALVANIZED, IN ACCORDANCE WITH ASTM A1023/A1023M.
 - EYE TO EYE TURNBUCKLES SHALL BE 1-1/4"x12", TYPE I, FORM 1 CLASS 4 ZINC COATED, IN ACCORDANCE WITH ASTM F1145.
 - WIRE ROPE CLAMPS SHALL BE TYPE I, CLASS 1, GALVANIZED, IN ACCORDANCE WITH FS FF-C-450.
 - U-BOLTS AND HEX NUTS SHALL BE 1/2", GALVANIZED, IN ACCORDANCE WITH ASTM A307 AND ASTM A563.
 - THREADED RODS SHALL BE 1-1/4", GALVANIZED, IN ACCORDANCE WITH ASTM A307 OR A36.
 - WELDED BRACE RAILS SHALL BE INSTALLED AS PER THE PLANS AND AWS D1.1 (STRUCTURAL WELDING CODE - STEEL) AT CORNER, END, GATE, AND PULL POSTS. DAMAGE TO THE GALVANIZED SURFACE DUE TO WELDING SHALL BE REPAIRED WITH "REPAIR STICKS" OF ZINC-CADMIUM ALLOYS OR ZINC-TIN LEAD ALLOYS AS PER AWS WZC.
 - DEADMAN OFFSET IS PROVIDED TO ALLOW ACCESS TO TURNBUCKLES FOR FUTURE ADJUSTMENT AFTER FENCE FABRIC IS INSTALLED. IF FENCE FABRIC IS NOT TO BE INSTALLED ON THE BARRIER POSTS, OFFSET MAY BE ELIMINATED AS APPROVED.
 - SEE DETAIL SHEET NOTES FOR CONCRETE INFORMATION

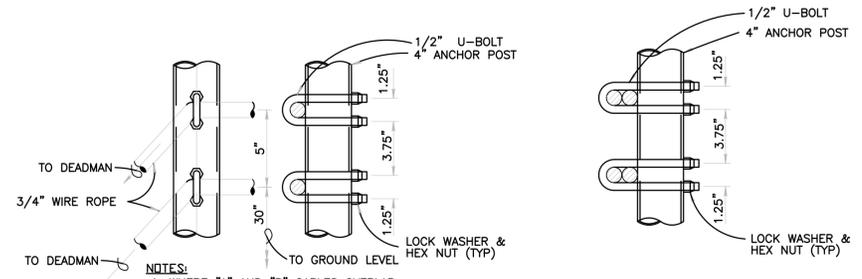


NOTE:
HOT DIP GALVANIZE ANCHOR ASSEMBLY AFTER FABRICATION.

DEADMAN ANCHOR BOLT DETAIL
NO SCALE

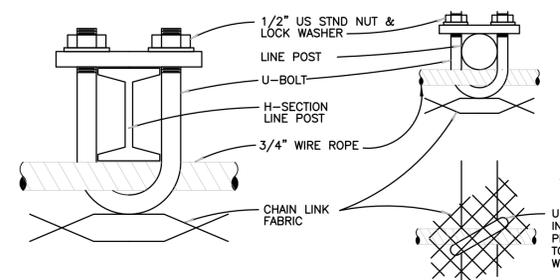


WIRE ROPE CLAMP DETAIL
NO SCALE

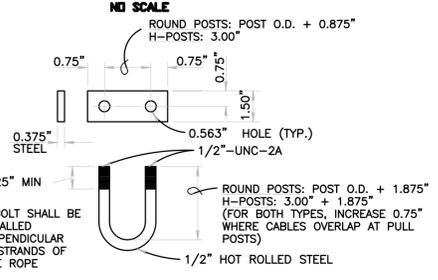


NOTES:
1. WHERE "A" AND "B" CABLES OVERLAP, USE U-BOLT AT OVERLAPPING CABLES DETAIL.
2. WIRE ROPE CLAMP NOT SHOWN.
3. VERIFY ASSEMBLY BEFORE ORDERING/FABRICATING.

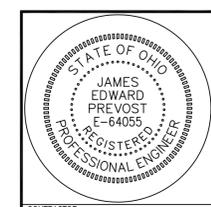
U-BOLT AT CABLE ANCHOR POST DETAIL
NO SCALE



U-BOLT AT LINE POST DETAILS
NO SCALE



U-BOLT AT CABLE ANCHOR POST DETAIL
NO SCALE



| | | | |
|-------------------------------|-----------------------|-------------|--|
| DRAWING/DESIGN STATUS: | | | |
| FOR BID - 01/29/2014 | | | |
| DRAWING MANAGEMENT | | | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS | |
| NASA APPROVALS | | | |
| DR: | DES: | | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | | |
| RELEASE APPROVAL: | | DATE: | |
| RELEASE APPROVAL: | | DATE: | |
| RELEASE APPROVAL: | | DATE: | |
| RELEASE STATUS: | | | |

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
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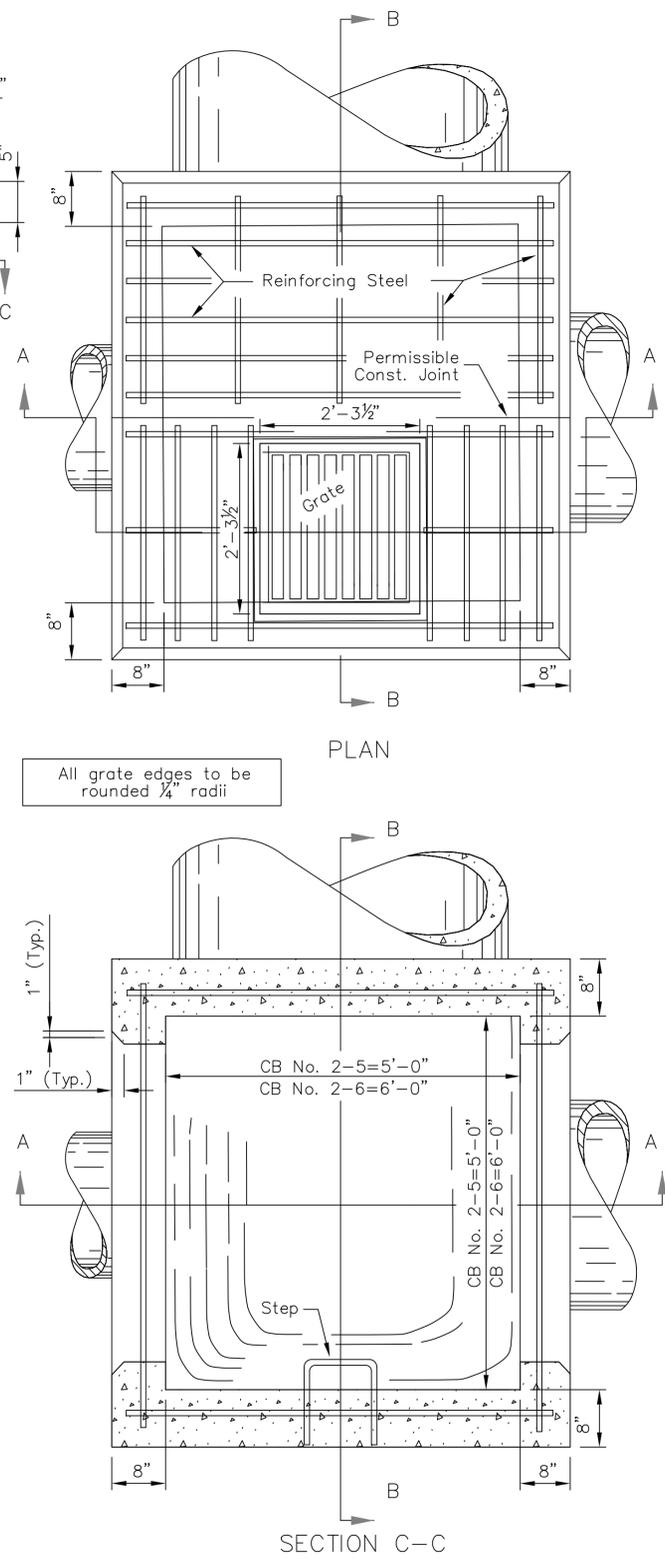
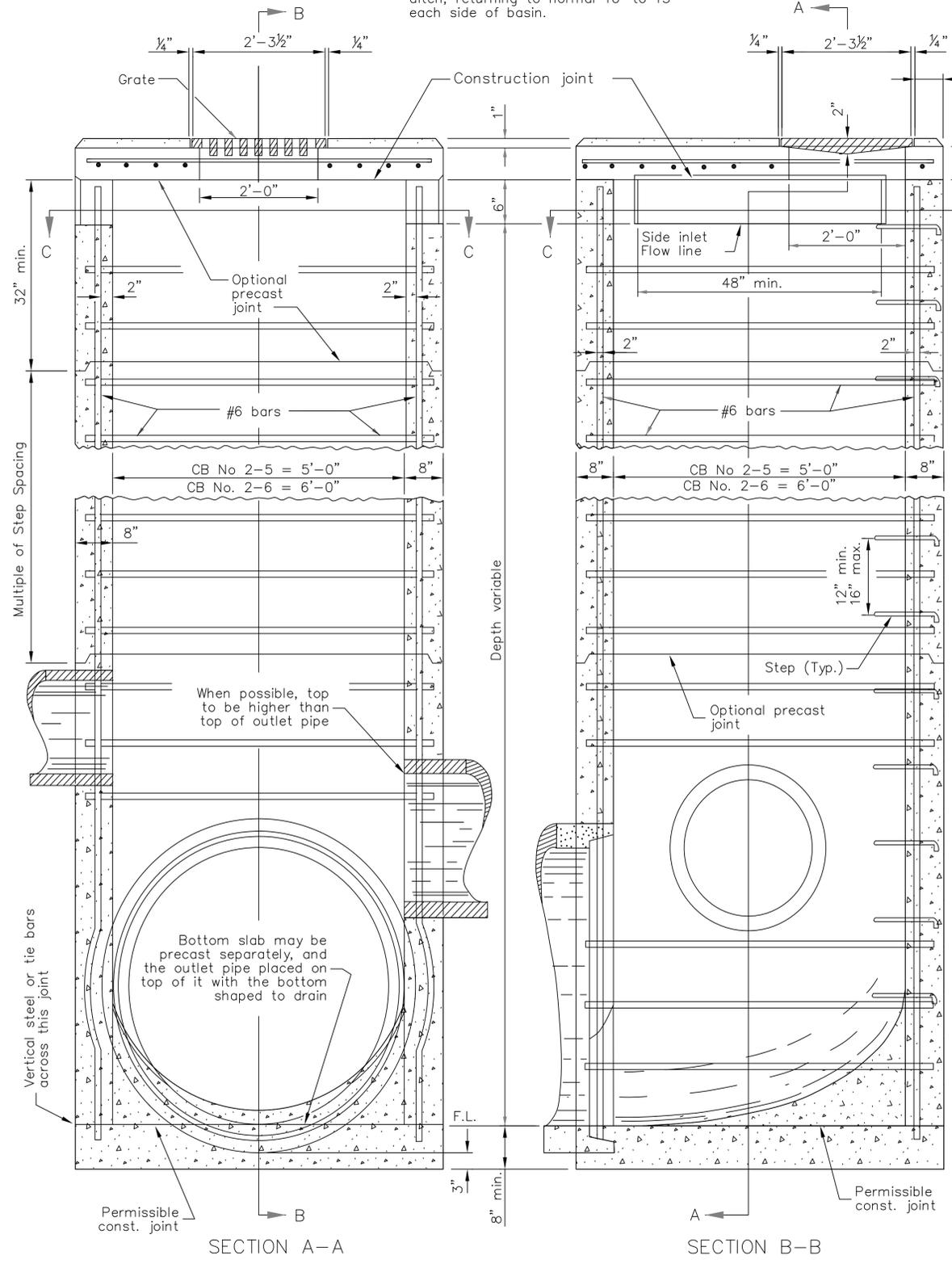
FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

FENCING CABLE ANCHOR MISCELLANEOUS DETAILS

| | | | | |
|----------------------------------|---------------------------|-----------------|------------------|---------|
| SIZE | BLDG/SYS | PROJECT ID | DISCP | TYP SEQ |
| CD STRM | | COF20196 | - C - 542 | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER | |
| SCALE: N/A | OFFICIAL DATE: 01/29/2014 | | | |

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Flow line to be 4" to 6" below normal ditch, returning to normal 10' to 15' each side of basin.



CATCH BASINS No. 2-5 & No. 2-6

| CATCH BASIN | OUTLET PIPE SIZE |
|-------------|------------------|
| 2-5 | 48" to 54" |
| 2-6 | 60" to 72" |

NOTES

GRATE: See details on SCD CB-1.1. Minimum weight of grate: 120 lbs., or meets the requirements of CMS 711.14. Provide grate openings and dimensions as shown here unless otherwise shown in the plans.

If necessary, bicycle safe grates will be specified in the plans. Furnish Neenah No. R-4859-C or East Jordan No. 5110 Type M3 bicycle safe grates or approved equals.

Cast the following text into the top of the grate:

"DUMP NO WASTE" and "DRAINS TO WATERWAY"

Print text in bold, capital letters at least 1/2" high. "WATERWAY" may be substituted with "STREAM", "RIVER", "LAKE", etc. Actual placement and logo may vary per manufacturer.

WALLS: Construct reinforced concrete walls 8" thick, as shown. Construct brick walls used in place of reinforced concrete with a nominal thickness of 12". Provide precast walls at least 6" thick with sufficient reinforcing to permit shipping and handling without damage and at least equivalent to reinforced cast-in-place construction.

STEPS: Provide steps where the depth exceeds 6'. Meet the requirements of SCD MH-1.1.

CONCRETE: Use 4000 psi compressive strength for Cast-in-place concrete. Meet the requirements of CMS 706.13 for all precast concrete and mark with the catch basin number.

REINFORCEMENT: Provide #6 bars spaced 6" center to center and #6 tie bars spaced as shown for top reinforcing. Main bars to clear bottom of slab by 1 1/4". Side wall to be reinforced with #6 bars horizontal in each side, 6' long for CB No. 2-5 and 7' long for CB 2-6, spaced at 1' center to center, and #6 bars in each corner length equals depth plus 1'.

PRECAST BASE: If a precast base is used, set it deep enough so that the top can be placed on the base to provide the grate elevation specified in the plans. Do not use brick layers to adjust the top elevation.

LOCATION AND ELEVATION: When given on the plans, the location and the elevation are at the top center of the grate. When side openings are provided, the elevation is at the flow line of the side inlet.

MINIMUM DEPTH: The minimum depth of CB No. 2-5 and CB No. 2-6 is the outside diameter (O.D.) of the outlet pipe plus 7".

OPENINGS: Obtain the Engineer's approval for any pipe openings greater than 4" from the outside of the pipe to the structure. Fill all voids per CMS 611.

SIDE INLETS: Provide inlets on both sides of the No. 2-5 and 2-6 catch basin in sags and on upstream side only where the ditch has a continuous down grade past the catch basin. Do not use catch basins with side inlets within the Clear Zone.

PAYMENT: All materials and labor, including excavation and backfilling, are paid for under Item 611 - Catch Basin, No. 2-5 or Item 611 - Catch Basin, No. 2-6.

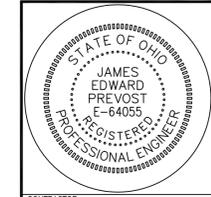
- NOTES:
- REFER TO ODOT STD. DWG. CB-1.3.
 - FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
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JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1
CATCH BASIN MISCELLANEOUS DETAILS

| SIZE | BLDG/SYS | PROJECT ID | DISCP | TYP SEQ |
|----------------------------------|---------------------------|-------------------------------------|-------|---------|
| | | CD STRM - COF20196 - C - 543 | | |
| AREA: NASA GLENN RESEARCH CENTER | SHEET OF | | | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER | |
| SCALE: NONE | OFFICIAL DATE: 01/29/2014 | | | |



| DRAWING/DESIGN STATUS: | | |
|-----------------------------|-----------------------|-------------|
| FOR BID - 01/29/2014 | | |
| DRAWING MANAGEMENT | | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE STATUS: | | |

| CONTRACTOR | CONTRACT NO. | TASK ORDER |
|------------------|----------------|--------------|
| BAHARR & PREVOST | NNC09BA13B | NNC12TB09T |
| DRAWN: RTF | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: | APPROVAL DATE: | |

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SUPERELEVATION TABLE

PI STA. 504+61.71 Dc = 14'00'00"

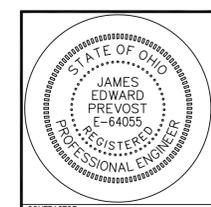
| LEFT SIDE | | | | | | | | CENTERLINE CONTROL | | RIGHT SIDE | | | | | | | | REMARKS |
|-------------------------|-------------|-------|-------------------------|-----------------|----------------------|-------------|-------|--------------------|---------------|------------|-------------|----------------------|-----------------|-------------------------|-------|-------------|-------------------------|-----------|
| SHOULDER EDGE ELEVATION | CROSS SLOPE | WIDTH | PAVEMENT EDGE ELEVATION | TRANSITION RATE | ELEVATION CORRECTION | CROSS SLOPE | WIDTH | STATION | PROFILE GRADE | WIDTH | CROSS SLOPE | ELEVATION CORRECTION | TRANSITION RATE | PAVEMENT EDGE ELEVATION | WIDTH | CROSS SLOPE | SHOULDER EDGE ELEVATION | |
| 689.28 | 0.0080 | 2.00 | 689.44 | | 0.39 | 0.0449 | 8.76 | 503+00.00 | 689.05 | 11.20 | -0.0074 | -0.08 | | 688.97 | 2.00 | 0.0080 | 688.81 | MATCH EX. |
| 690.11 | 0.0080 | 2.00 | 690.27 | 210:1 | 0.37 | 0.0400 | 9.20 | 503+09.47 | 689.90 | 11.58 | -0.0125 | -0.14 | 162:1 | 689.76 | 2.00 | 0.0080 | 689.60 | |
| 691.08 | 0.0080 | 2.00 | 691.24 | | 0.39 | 0.0400 | 9.69 | 503+20.00 | 690.85 | 12.00 | -0.0179 | -0.21 | 162:1 | 690.64 | 2.00 | 0.0080 | 690.48 | |
| 691.54 | 0.0080 | 2.00 | 691.70 | | 0.40 | 0.0400 | 9.92 | 503+25.00 | 691.30 | 12.00 | -0.0205 | -0.25 | 162:1 | 691.05 | 2.00 | 0.0080 | 690.89 | |
| 693.83 | 0.0080 | 2.00 | 693.99 | | 0.44 | 0.0400 | 11.07 | 503+50.00 | 693.55 | 12.00 | -0.0334 | -0.40 | 162:1 | 693.15 | 2.00 | 0.0080 | 692.99 | |
| 695.03 | 0.0080 | 2.00 | 695.19 | | 0.47 | 0.0400 | 11.68 | 503+62.98 | 694.72 | 12.00 | -0.0400 | -0.48 | 162:1 | 694.24 | 2.00 | 0.0080 | 694.08 | BEGIN FS |
| 695.67 | 0.0080 | 2.00 | 695.83 | | 0.48 | 0.0400 | 12.00 | 503+70.00 | 695.35 | 12.00 | -0.0400 | -0.48 | | 694.87 | 2.00 | 0.0080 | 694.71 | |
| 696.12 | 0.0080 | 2.00 | 696.28 | | 0.48 | 0.0400 | 12.00 | 503+75.00 | 695.80 | 12.00 | -0.0400 | -0.48 | | 695.32 | 2.00 | 0.0080 | 695.16 | |
| 698.37 | 0.0080 | 2.00 | 698.53 | | 0.48 | 0.0400 | 12.00 | 504+00.00 | 698.05 | 12.00 | -0.0400 | -0.48 | | 697.57 | 2.00 | 0.0080 | 697.41 | |
| 700.62 | 0.0080 | 2.00 | 700.78 | | 0.48 | 0.0400 | 12.00 | 504+25.00 | 700.30 | 12.00 | -0.0400 | -0.48 | | 699.82 | 2.00 | 0.0080 | 699.66 | |
| 702.87 | 0.0080 | 2.00 | 703.03 | | 0.48 | 0.0400 | 12.00 | 504+50.00 | 702.55 | 12.00 | -0.0400 | -0.48 | | 702.07 | 2.00 | 0.0080 | 701.91 | |
| 705.12 | 0.0080 | 2.00 | 705.28 | | 0.48 | 0.0400 | 12.00 | 504+75.00 | 704.80 | 12.00 | -0.0400 | -0.48 | | 704.32 | 2.00 | 0.0080 | 704.16 | |
| 707.37 | 0.0080 | 2.00 | 707.53 | | 0.48 | 0.0400 | 12.00 | 505+00.00 | 707.05 | 12.00 | -0.0400 | -0.48 | | 706.57 | 2.00 | 0.0080 | 706.41 | |
| 709.62 | 0.0080 | 2.00 | 709.78 | | 0.48 | 0.0400 | 12.00 | 505+25.00 | 709.30 | 12.00 | -0.0400 | -0.48 | | 708.82 | 2.00 | 0.0080 | 708.66 | |
| 711.87 | 0.0080 | 2.00 | 712.03 | | 0.48 | 0.0400 | 12.00 | 505+50.00 | 711.55 | 12.00 | -0.0400 | -0.48 | | 711.07 | 2.00 | 0.0080 | 710.91 | |
| 714.12 | 0.0080 | 2.00 | 714.28 | | 0.48 | 0.0400 | 12.00 | 505+75.00 | 713.80 | 12.00 | -0.0400 | -0.48 | | 713.32 | 2.00 | 0.0080 | 713.16 | |
| 716.37 | 0.0080 | 2.00 | 716.53 | | 0.48 | 0.0400 | 12.00 | 506+00.00 | 716.05 | 12.00 | -0.0400 | -0.48 | | 715.57 | 2.00 | 0.0080 | 715.41 | |
| 718.62 | 0.0080 | 2.00 | 718.78 | | 0.48 | 0.0400 | 12.00 | 506+25.00 | 718.30 | 12.00 | -0.0400 | -0.48 | | 717.82 | 2.00 | 0.0080 | 717.66 | |
| 719.67 | 0.0080 | 2.00 | 719.83 | | 0.48 | 0.0400 | 12.00 | 506+36.69 | 719.35 | 12.00 | -0.0400 | -0.48 | | 718.87 | 2.00 | 0.0080 | 718.71 | END FS |
| 720.79 | 0.0080 | 2.00 | 720.95 | 160:1 | 0.40 | 0.0331 | 12.00 | 506+50.00 | 720.55 | 12.00 | -0.0331 | -0.40 | 160:1 | 720.15 | 2.00 | 0.0080 | 719.99 | |
| 721.82 | 0.0080 | 2.00 | 721.98 | 160:1 | 0.32 | 0.0267 | 12.00 | 506+62.35 | 721.66 | 12.00 | -0.0267 | -0.32 | 160:1 | 721.34 | 2.00 | 0.0080 | 721.18 | PT |
| 722.88 | 0.0080 | 2.00 | 723.04 | 160:1 | 0.24 | 0.0201 | 12.00 | 506+75.00 | 722.80 | 12.00 | -0.0201 | -0.24 | 160:1 | 722.56 | 2.00 | 0.0080 | 722.40 | |
| 723.54 | 0.0080 | 2.00 | 723.70 | 160:1 | 0.19 | 0.0160 | 12.00 | 506+82.89 | 723.51 | 12.00 | -0.0160 | -0.19 | 160:1 | 723.32 | 2.00 | 0.0080 | 723.16 | END SUPER |
| 724.98 | 0.0080 | 2.00 | 725.14 | 160:1 | 0.09 | 0.0071 | 12.00 | 507+00.00 | 725.05 | 12.00 | -0.0160 | -0.19 | | 724.86 | 2.00 | 0.0080 | 724.70 | |
| 726.12 | 0.0080 | 2.00 | 726.28 | 160:1 | 0.00 | 0.0000 | 12.00 | 507+13.69 | 726.28 | 12.00 | -0.0160 | -0.19 | | 726.09 | 2.00 | 0.0080 | 725.93 | 1/2 LEVEL |
| 727.07 | 0.0080 | 2.00 | 727.23 | 160:1 | -0.07 | -0.0059 | 12.00 | 507+25.00 | 727.30 | 12.00 | -0.0160 | -0.19 | | 727.11 | 2.00 | 0.0080 | 726.95 | |
| 728.70 | 0.0080 | 2.00 | 728.86 | 160:1 | -0.19 | -0.0160 | 12.00 | 507+44.49 | 729.05 | 12.00 | -0.0160 | -0.19 | | 728.86 | 2.00 | 0.0080 | 728.70 | BEGIN NC |

SUPERELEVATION TABLE

PI STA. 510+02.15 Dc = 81'51'04"

| LEFT SIDE | | | | | | | | CENTERLINE CONTROL | | RIGHT SIDE | | | | | | | | REMARKS |
|-------------------------|-------------|-------|-------------------------|-----------------|----------------------|-------------|-------|--------------------|---------------|------------|-------------|----------------------|-----------------|-------------------------|-------|-------------|-------------------------|-------------|
| SHOULDER EDGE ELEVATION | CROSS SLOPE | WIDTH | PAVEMENT EDGE ELEVATION | TRANSITION RATE | ELEVATION CORRECTION | CROSS SLOPE | WIDTH | STATION | PROFILE GRADE | WIDTH | CROSS SLOPE | ELEVATION CORRECTION | TRANSITION RATE | PAVEMENT EDGE ELEVATION | WIDTH | CROSS SLOPE | SHOULDER EDGE ELEVATION | |
| 741.56 | 0.0080 | 2.00 | 741.72 | | -0.19 | -0.0160 | 12.00 | 508+87.42 | 741.91 | 12.00 | -0.0160 | -0.19 | | 741.72 | 2.00 | 0.0080 | 741.56 | END NC |
| 742.70 | 0.0080 | 2.00 | 742.86 | | -0.19 | -0.0160 | 12.00 | 509+00.00 | 743.05 | 12.00 | -0.0095 | -0.11 | 160:1 | 742.94 | 2.00 | 0.0080 | 742.78 | |
| 744.34 | 0.0080 | 2.00 | 744.50 | | -0.19 | -0.0160 | 12.00 | 509+18.22 | 744.69 | 12.00 | 0.0000 | 0.00 | 160:1 | 744.69 | 2.00 | 0.0080 | 744.53 | 1/2 LEVEL |
| 744.95 | 0.0080 | 2.00 | 745.11 | | -0.19 | -0.0160 | 12.00 | 509+25.00 | 745.30 | 12.00 | 0.0035 | 0.04 | 160:1 | 745.34 | 2.00 | 0.0080 | 745.18 | |
| 746.97 | 0.0080 | 2.00 | 747.13 | | -0.19 | -0.0160 | 12.00 | 509+49.02 | 747.32 | 12.00 | 0.0160 | 0.19 | 160:1 | 747.51 | 2.00 | 0.0080 | 747.35 | BEGIN SUPER |
| 747.04 | 0.0080 | 2.00 | 747.20 | 160:1 | -0.20 | -0.0165 | 12.00 | 509+50.00 | 747.40 | 12.00 | 0.0165 | 0.20 | 160:1 | 747.60 | 2.00 | 0.0080 | 747.44 | |
| 748.23 | 0.0080 | 2.00 | 748.39 | 160:1 | -0.32 | -0.0267 | 12.00 | 509+69.56 | 748.71 | 12.00 | 0.0267 | 0.32 | 160:1 | 749.03 | 2.00 | 0.0080 | 748.87 | PC |
| 748.51 | 0.0080 | 2.00 | 748.67 | 160:1 | -0.35 | -0.0295 | 12.00 | 509+75.00 | 749.02 | 12.00 | 0.0295 | 0.35 | 160:1 | 749.37 | 2.00 | 0.0080 | 749.21 | |
| 749.32 | 0.0080 | 2.00 | 749.48 | 160:1 | -0.48 | -0.0400 | 12.00 | 509+95.22 | 749.96 | 12.00 | 0.0400 | 0.48 | 160:1 | 750.44 | 2.00 | 0.0080 | 750.28 | BEGIN FS |
| 749.41 | 0.0080 | 2.00 | 749.57 | | -0.48 | -0.0400 | 12.00 | 509+97.60 | 750.05 | 12.00 | 0.0400 | 0.48 | | 750.53 | 2.00 | 0.0080 | 750.37 | END FS |
| 749.51 | 0.0080 | 2.00 | 749.67 | 161:1 | -0.47 | -0.0388 | 12.00 | 510+00.00 | 750.14 | 12.00 | 0.0388 | 0.47 | 161:1 | 750.61 | 2.00 | 0.0080 | 750.45 | |
| 750.28 | 0.0080 | 2.00 | 750.44 | 161:1 | -0.31 | -0.0258 | 12.00 | 510+25.00 | 750.75 | 12.00 | 0.0258 | 0.31 | 161:1 | 751.06 | 2.00 | 0.0080 | 750.90 | |
| 750.39 | 0.0080 | 2.00 | 750.55 | 161:1 | -0.27 | -0.0229 | 12.00 | 510+30.56 | 750.82 | 12.00 | 0.0229 | 0.27 | 161:1 | 751.09 | 2.00 | 0.0080 | 750.93 | PT |
| 750.54 | 0.0080 | 2.00 | 750.70 | 161:1 | -0.19 | -0.0160 | 12.00 | 510+43.80 | 750.89 | 12.00 | 0.0160 | 0.19 | 161:1 | 751.08 | 2.00 | 0.0080 | 750.92 | END SUPER |
| 750.56 | 0.0080 | 2.00 | 750.72 | 161:1 | -0.15 | -0.0128 | 12.00 | 510+50.00 | 750.87 | 12.00 | 0.0128 | 0.15 | 161:1 | 751.02 | 2.00 | 0.0080 | 750.86 | |
| 750.54 | 0.0080 | 2.00 | 750.70 | 161:1 | -0.14 | -0.0117 | 12.00 | 510+52.11 | 750.84 | 12.00 | 0.0117 | 0.14 | 161:1 | 750.98 | 2.00 | 0.0080 | 750.82 | MATCH EX. |

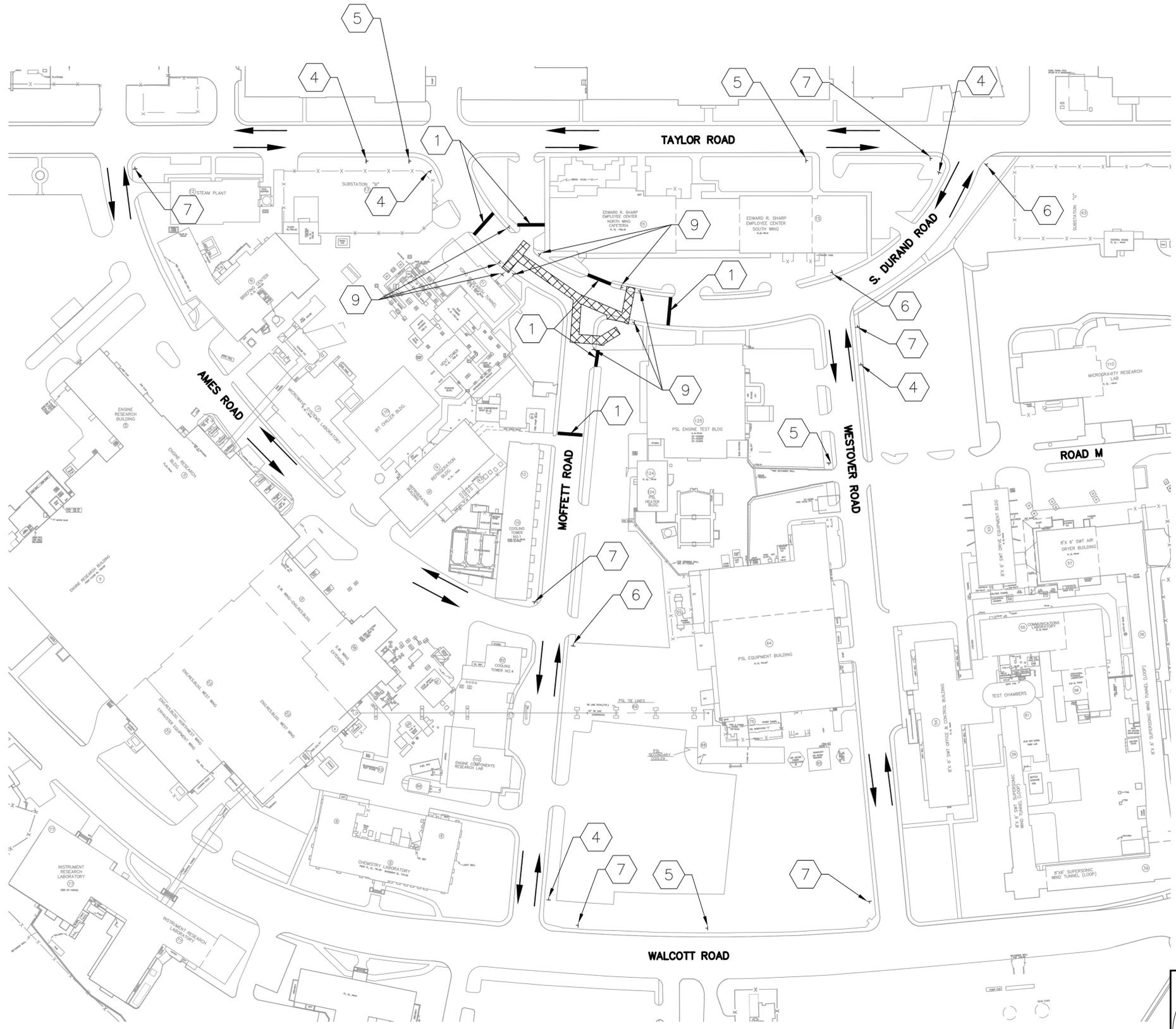
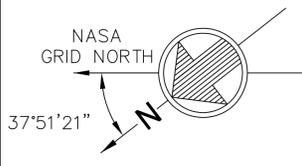
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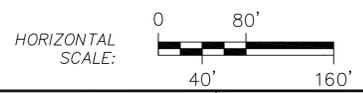
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| FOR BID - 01/29/2014 | | |
| DRAWING MANAGEMENT | | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE STATUS: | | |

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|---------------------------|-------------|---------------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| SUPERELEVATION TABLES WEST AREA ROAD STA. 503+00.00 TO STA. 510+52.11 | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 - C - 601 | | | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: N/A | OFFICIAL DATE: 01/29/2014 | | |

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TRAFFIC CONTROL PLAN - S. DURAND ROAD CLOSED

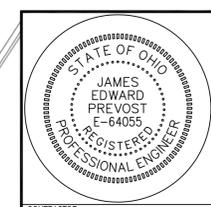


- NOTES:
- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - FOR GENERAL NOTES, REFER TO SHEETS COF20196-G-010 THROUGH COF20196-G-013.
 - THE CONTRACTOR SHALL PERFORM DAILY INSPECTIONS OF CONSTRUCTION FENCE, DEVICES, SIGNS, AND REPAIR AND MAINTAIN THE SIGNS AND FENCES AS NECESSARY.
 - ALL TRAFFIC CONTROL BARRICADES SHALL BE ERECTED AFTER 5PM AND BEFORE 6:30AM OR ON SATURDAY OR SUNDAY. IF LARGER LENGTH BARRICADES ARE USED, LESS BARRICADES WILL BE REQUIRED.
 - ALL TEMPORARY FEATURES SHALL BE SUBSEQUENTLY REMOVED UPON COMPLETION OF WORK AND ANY DAMAGE DUE TO CONSTRUCTION SHALL BE RECONSTRUCTED TO AS-PREVIOUS CONDITION OR BETTER AT NO ADDITIONAL COST TO GOVERNMENT.
 - CONTRACTOR TO PROVIDE GATE ACCESS TO ALL PAVEMENT AREAS AND MAINTAIN ALL EMERGENCY ACCESS POINTS TO BUILDINGS.
 - CONTRACTOR TO MAINTAIN ACCESS TO ALL DOORWAYS TO BUILDINGS. AT ANY TIME ACCESS WILL NOT BE POSSIBLE CONTRACTOR TO COORDINATE WITH NASA CM 14 DAYS PRIOR TO OBSTRUCTION.
 - CONTRACTOR TO PROVIDE CONSTRUCTION SIGNS PER THE NASA STANDARDS (CONSTRUCTION SIGN, HARD HAT SIGNS, HEARING PROTECTION IF REQUIRED, VISION PROTECTION). ALL SIZES SHALL CONFORM TO NASA STANDARDS AND SPECIFICATIONS. THIS SHOULD BE INCLUDED WITH BASE PRICE.
 - THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL CONTROL DEVICES.
 - FOR TYPE III BARRICADE DETAIL, SEE SHEET COF20196-C-710.

LEGEND:

- ← DETOUR ROUTE
- DETOUR ROUTE
- 1 TYPE III BARRICADES
- 4 ROAD CLOSED AHEAD W20-3
- 5 DURAND ROAD SPECIAL (21"x15")
- 6 DURAND ROAD SPECIAL (21"x15")
- 7 DURAND ROAD SPECIAL (21"x15")
- 8 DURAND ROAD SPECIAL (21"x15")
- 9 SIDEWALK CLOSED R9-9
- DETOUR M4-8
- DETOUR M6-3* (* BLACK ON ORANGE)
- PAVEMENT TO BE REMOVED

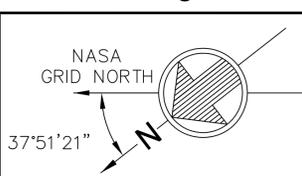
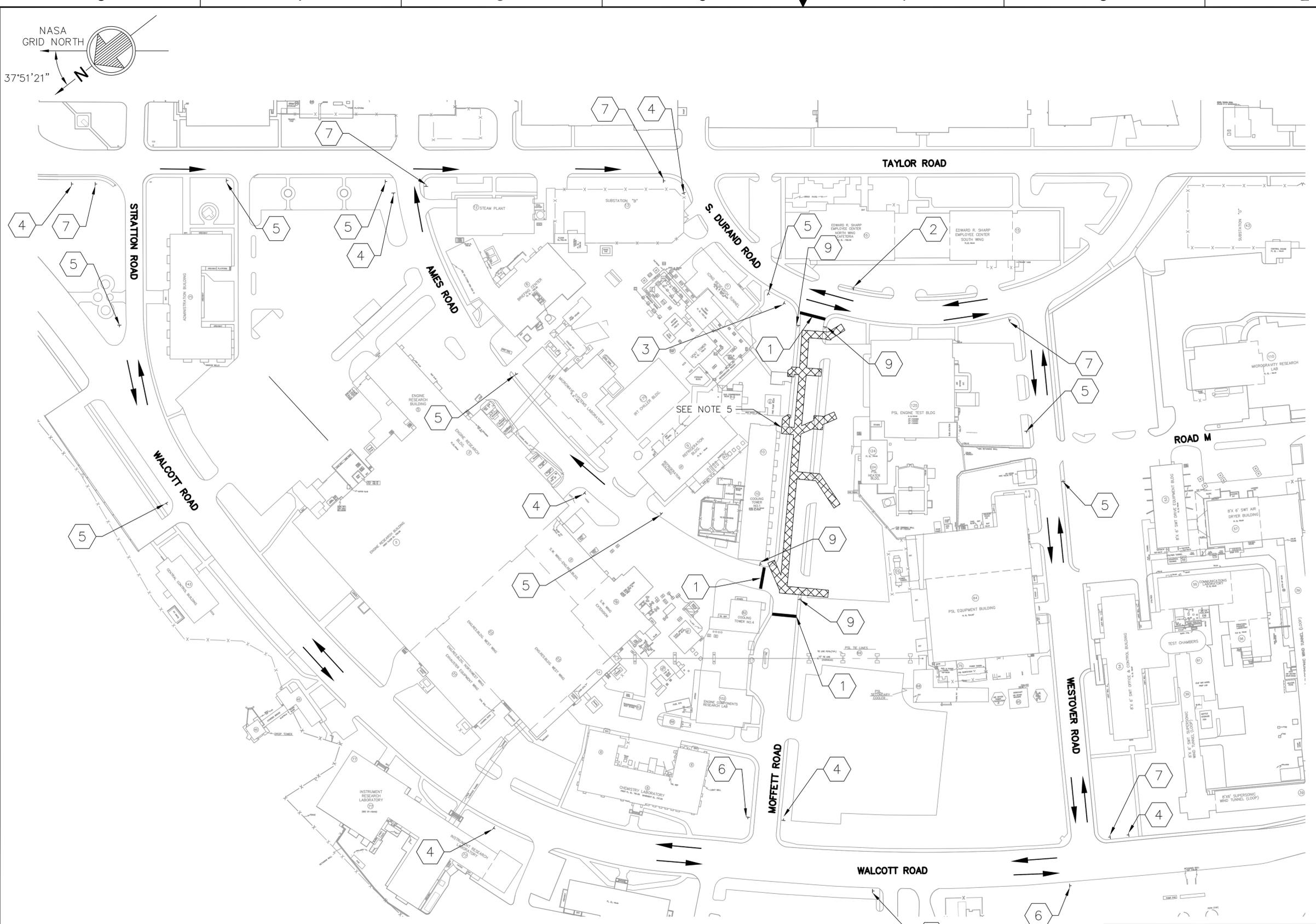
| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |



| | | | |
|-------------------------------|-----------------------|-------------|--|
| DRAWING/DESIGN STATUS: | | | |
| FOR BID - 01/29/2014 | | | |
| DRAWING MANAGEMENT | | | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS | |
| NASA APPROVALS | | | |
| DR: | DES: | | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | | |
| RELEASE APPROVAL: | DATE: | | |
| RELEASE APPROVAL: | DATE: | | |
| RELEASE APPROVAL: | DATE: | | |
| RELEASE STATUS: | | | |

| | | | |
|--|---------------------------|------------------|---------------|
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION | | | |
| JOHN H. GLENN RESEARCH CENTER | | | |
| LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| TRAFFIC CONTROL PLAN | | | |
| OUTFALL 1 | | | |
| S. DURAND ROAD | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 701 | |
| AREA: NASA GLENN RESEARCH CENTER | SHEET | OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: 1" = 80' | OFFICIAL DATE: 01/29/2014 | | |

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- NOTES:**
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 - FOR GENERAL NOTES, REFER TO SHEETS COF20196-G-010 THROUGH COF20196-G-013.
 - FOR TYPE III BARRICADE DETAIL, SEE SHEET COF20196-C-710.
 - FOR STANDARD TRAFFIC NOTES, REFER TO SHEET COF20196-C-701.
 - WORK ON DRIVE BETWEEN BLDG 18-1 AND BLDG 10 SHALL BE PERFORMED DURING THE HOURS OF 6:00 PM THROUGH 5:00 AM OR OVER THE WEEKEND. THE CONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS WITH NASA COR.
 - CONTRACTOR TO PROVIDE PHASING SUBMISSION PLAN TO NASA CM PRIOR TO CLOSING PARKING LOTS.

- LEGEND:**
- DETOUR ROUTE
 - TYPE III BARRICADES
 - R3-2
 - R3-1
 - ROAD CLOSED AHEAD W20-3
 - MOFFETT ROAD SPECIAL (21"x15")
 - MOFFETT ROAD SPECIAL (21"x15")
 - DETOUR M4-8
 - M6-3* (* BLACK ON ORANGE)
 - MOFFETT ROAD SPECIAL (21"x15")
 - DETOUR M4-8
 - W1-6
 - MOFFETT ROAD SPECIAL (21"x15")
 - DETOUR M4-8
 - W1-6
 - SIDEWALK CLOSED R9-9
 - DRUMS
 - PAVEMENT TO BE REMOVED

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

TRAFFIC CONTROL PLAN
OUTFALL 1
MOFFETT ROAD

| | | | | |
|-------------------------------------|---------------------------|------------|------|---------|
| SIZE | BLDG/SYS | PROJECT ID | DISC | TYP SEQ |
| CD STRM - COF20196 - C - 702 | | | | |
| AREA: NASA GLENN RESEARCH CENTER | SHEET OF | | | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER | |
| SCALE: 1" = 80' | OFFICIAL DATE: 01/29/2014 | | | |

STATE OF OHIO
JAMES EDWARD PREVOST
E-64065
REGISTERED PROFESSIONAL ENGINEER

DRAWING/DESIGN STATUS:
FOR BID - 01/29/2014

DRAWING MANAGEMENT
 SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS

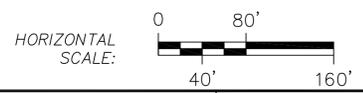
NASA APPROVALS

DR: _____ DES: _____
 D.ENG: _____ PROJ. MGR: J. SCHULTZ

CONTRACTOR: BARR & PREVOST
 CONTRACT NO: NNC09BA13B
 TASK ORDER: NNC12TB09T

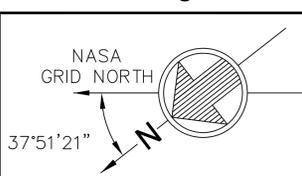
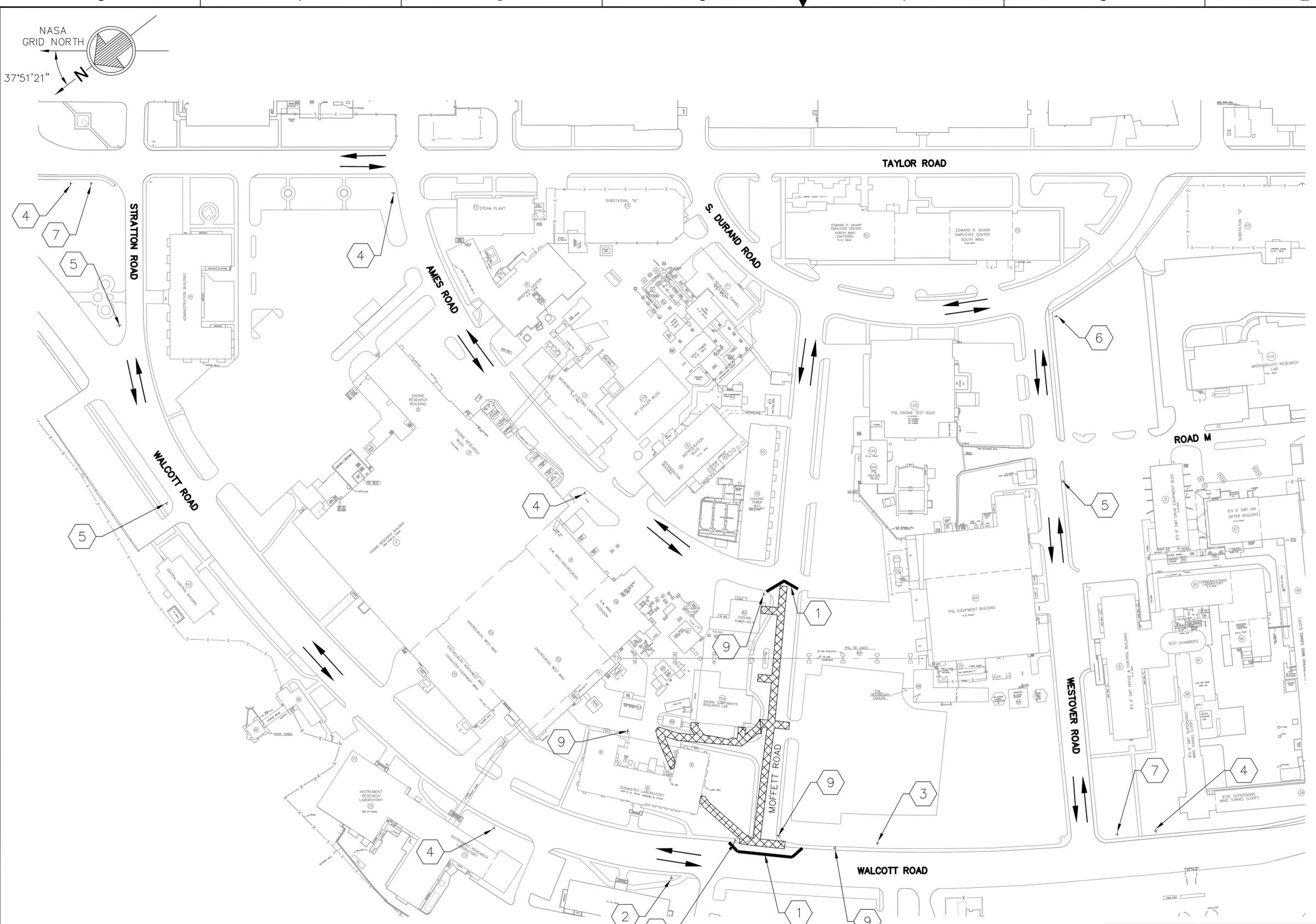
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 APPROVAL DATE: _____

RELEASE APPROVAL: _____ DATE: _____
 RELEASE APPROVAL: _____ DATE: _____
 RELEASE APPROVAL: _____ DATE: _____
 RELEASE STATUS: _____



TRAFFIC CONTROL PLAN – MOFFETT ROAD CLOSED

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 - FOR GENERAL NOTES, REFER TO SHEETS COF20196-G-010 THROUGH COF20196-G-013.
 - FOR TYPE III BARRICADE DETAIL, SEE SHEET COF20196-C-710.
 - FOR STANDARD TRAFFIC NOTES, REFER TO SHEET COF20196-C-701.
 - WORK ON DRIVE BETWEEN BLDG 18-1 AND BLDG 10 SHALL BE PERFORMED DURING THE HOURS OF 6:00 PM THROUGH 5:00 AM OR OVER THE WEEKEND. THE CONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS WITH NASA COR.
 - CONTRACTOR TO PROVIDE PHASING SUBMISSION PLAN TO NASA CM PRIOR TO CLOSING PARKING LOTS.

LEGEND:

| | |
|--|--------------------------------|
| | DETOUR ROUTE |
| | TYPE III BARRICADES |
| | R3-2 |
| | R3-1 |
| | ROAD CLOSED AHEAD W20-3 |
| | MOFFETT ROAD SPECIAL (21"x15") |
| | MOFFETT ROAD SPECIAL (21"x15") |
| | DETOUR M4-8 |
| | M6-3* (* BLACK ON ORANGE) |
| | MOFFETT ROAD SPECIAL (21"x15") |
| | DETOUR M4-8 |
| | MOFFETT ROAD SPECIAL (21"x15") |
| | DETOUR M4-8 |
| | MOFFETT ROAD SPECIAL (21"x15") |
| | DETOUR M4-8 |
| | MOFFETT ROAD SPECIAL (21"x15") |
| | DETOUR M4-8 |
| | MOFFETT ROAD SPECIAL (21"x15") |
| | DETOUR M4-8 |
| | MOFFETT ROAD SPECIAL (21"x15") |
| | DETOUR M4-8 |
| | MOFFETT ROAD SPECIAL (21"x15") |
| | DETOUR M4-8 |
| | SIDEWALK CLOSED R9-9 |
| | DRUMS |
| | PAVEMENT TO BE REMOVED |

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |

| | | | |
|--|---------------------------|------------------|---------------|
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION | | | |
| JOHN H. GLENN RESEARCH CENTER | | | |
| LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| TRAFFIC CONTROL PLAN | | | |
| OUTFALL 1 | | | |
| MOFFETT ROAD | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 703 | |
| AREA: NASA GLENN RESEARCH CENTER | SHEET | OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: 1" = 80' | OFFICIAL DATE: 01/29/2014 | | |

JAMES EDWARD PREVOST
E-64065
REGISTERED PROFESSIONAL ENGINEER

DRAWING/DESIGN STATUS:
FOR BID - 01/29/2014

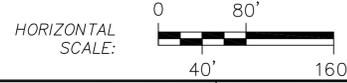
DRAWING MANAGEMENT
SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS

NASA APPROVALS
DR: | DES: |
D.ENG: | PROJ. MGR: J. SCHULTZ

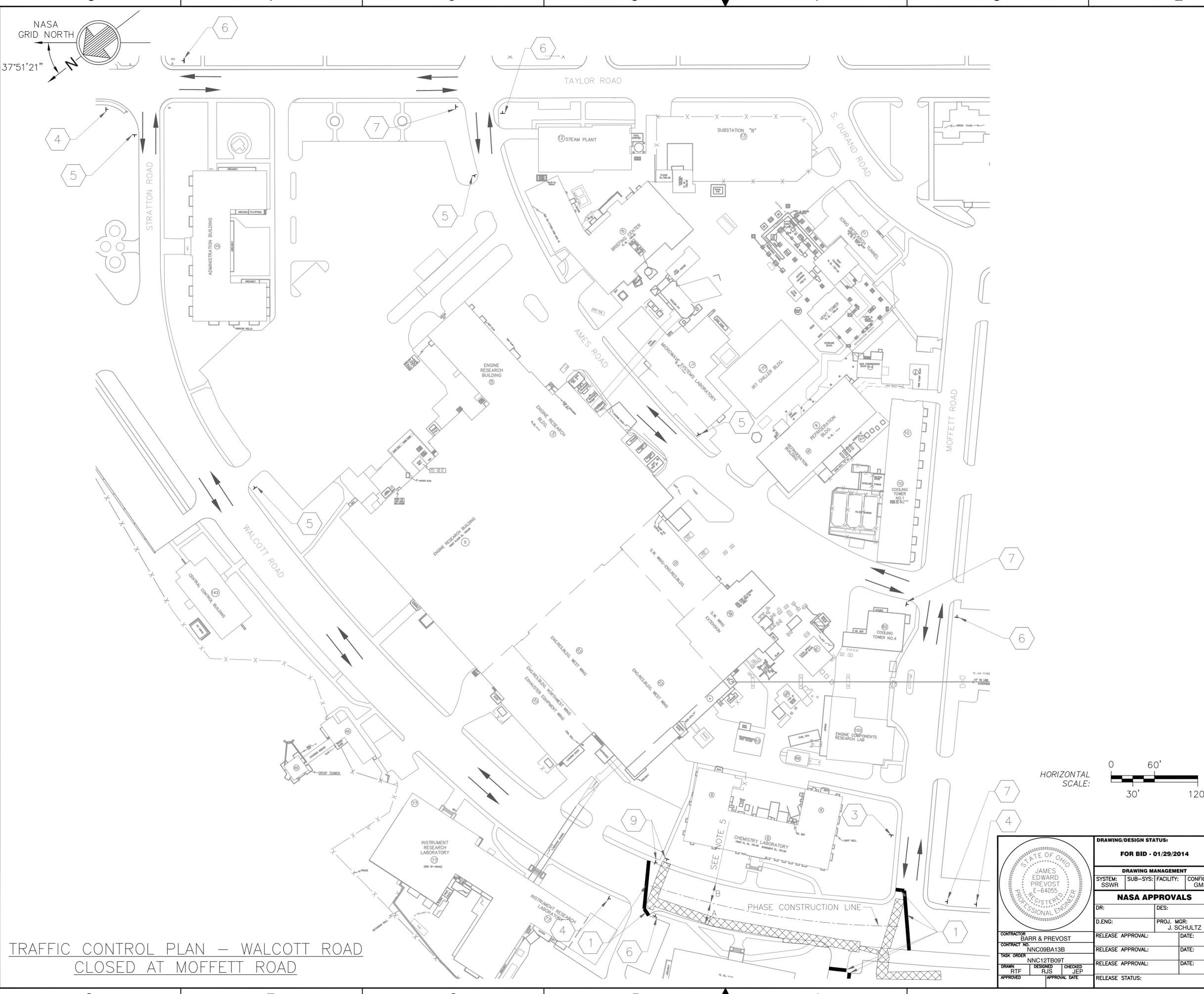
CONTRACTOR: BARR & PREVOST
CONTRACT NO.: NNC09BA13B
TASK ORDER: NNC12TB09T

DRAWN: RTE | DESIGNED: RJS | CHECKED: JEP | APPROVED: | APPROVAL DATE:

TRAFFIC CONTROL PLAN – MOFFETT ROAD CLOSED



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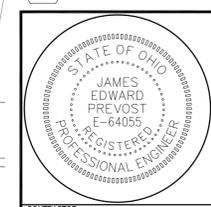
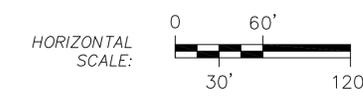


TRAFFIC CONTROL PLAN - WALCOTT ROAD
CLOSED AT MOFFETT ROAD

- NOTES:
- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - FOR GENERAL NOTES, REFER TO SHEETS COF20196-G-010 THROUGH COF20196-G-013.
 - FOR TYPE III BARRICADE DETAIL, SEE SHEET COF20196-C-710.
 - FOR STANDARD TRAFFIC NOTES, REFER TO SHEET COF20196-C-701.
 - CONTRACTOR TO PROVIDE CONSTRUCTION PHASING A AND B TO ALLOW 2 LANES OF TRAFFIC AT ALL TIMES ON WALCOTT ROAD. OPEN EXCAVATIONS TO BE PROTECTED BY PCB OR DRUMS WITH STEEL PLATE TO COVER OPEN EXCAVATIONS AT NIGHT.

LEGEND:

- DETOUR ROUTE
- TYPE III BARRICADES
- R3-1
- ROAD CLOSED AHEAD W20-3
- SPECIAL (21"x15")
- SPECIAL (21"x15")
- M4-8
- M6-3* (* BLACK ON ORANGE)
- SPECIAL (21"x15")
- M4-8
- W1-6
- SPECIAL (21"x15")
- M4-8
- W1-6
- R9-9
- PAVEMENT TO BE REMOVED

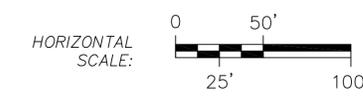
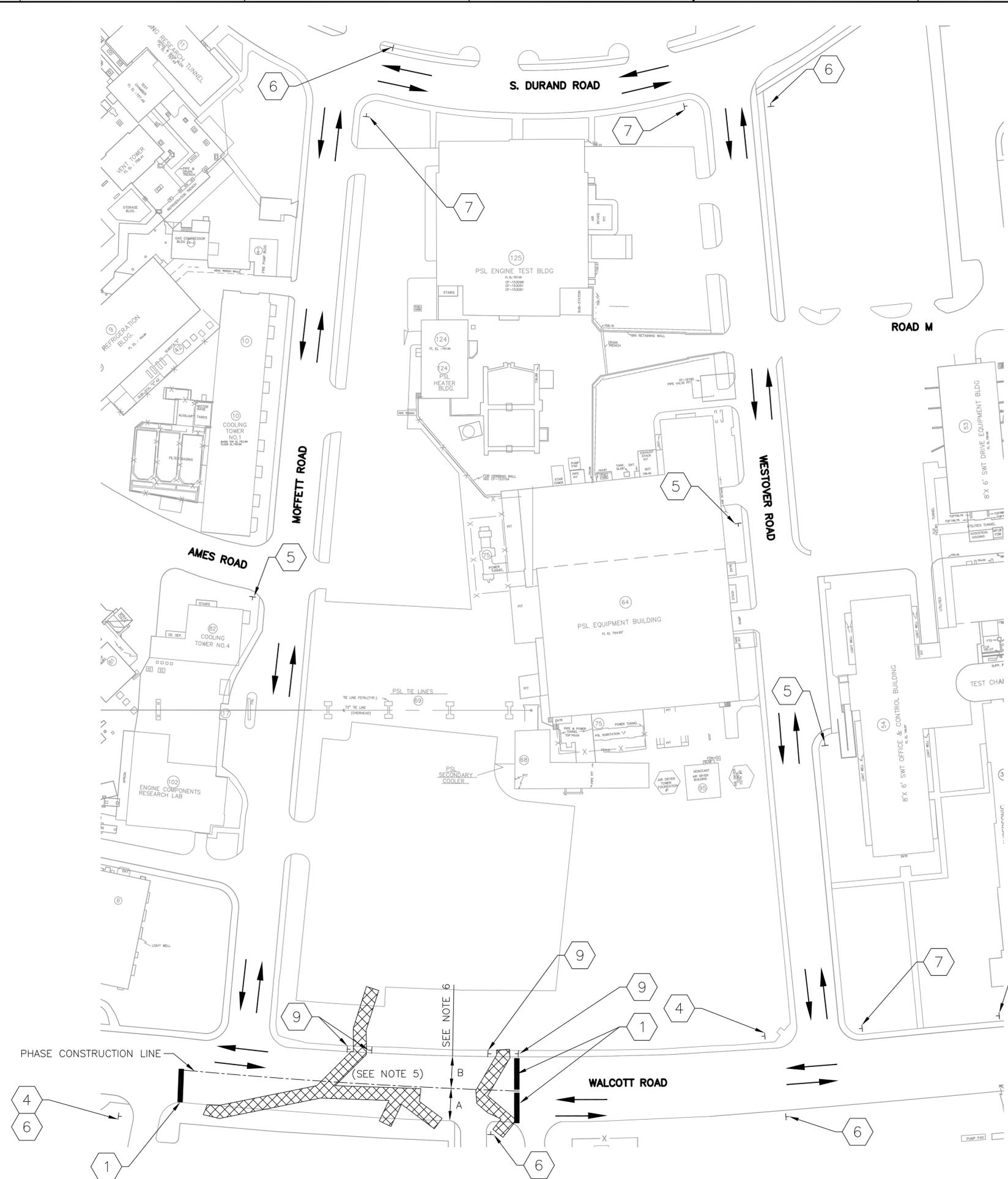
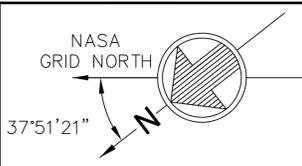


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| DRAWING/DESIGN STATUS: | |
| FOR BID - 01/29/2014 | |
| DRAWING MANAGEMENT | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: CONFIG: GMS |
| NASA APPROVALS | |
| DR: | DES: |
| D.ENG: | PROJ. MGR: J. SCHULTZ |
| RELEASE APPROVAL: | DATE: |
| RELEASE APPROVAL: | DATE: |
| RELEASE APPROVAL: | DATE: |
| RELEASE STATUS: | |

| | | | |
|----------------------------|---------------|--------------|----------------|
| CONTRACTOR: BARR & PREVOST | | | |
| CONTRACT NO: NNC09BA13B | | | |
| TASK ORDER: NNC12TB09T | | | |
| DRAWN: RTF | DESIGNED: RJS | CHECKED: JEP | APPROVED: |
| | | | APPROVAL DATE: |

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|---------------------------|------------------|-----------------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| TRAFFIC CONTROL PLAN OUTFALL 1 WALCOTT ROAD | | | |
| SIZE: | BLDG/SYS: | PROJECT ID: | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 704 | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET | OF |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: 1" = 60' | OFFICIAL DATE: 01/29/2014 | | |

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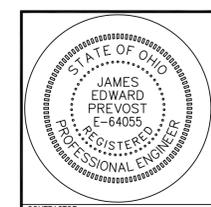
- NOTES:
- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - FOR GENERAL NOTES, REFER TO SHEETS COF20196-G-010 THROUGH COF20196-G-013.
 - FOR TYPE III BARRICADE DETAIL, SEE SHEET COF20196-C-710.
 - FOR STANDARD TRAFFIC NOTES, REFER TO SHEET COF20196-C-701.
 - CONTRACTOR TO PROVIDE PHASING SUBMISSION PLAN TO NASA CM PRIOR TO CLOSING PARKING LOTS.
 - CONTRACTOR TO PROVIDE CONSTRUCTION PHASING A AND B TO ALLOW 2 LANES OF TRAFFIC AT ALL TIMES ON WALCOTT ROAD. OPEN EXCAVATIONS TO BE PROTECTED BY PCB OR DRUMS WITH STEEL PLATE TO COVER OPEN EXCAVATIONS AT NIGHT.

LEGEND:

| | |
|--|--------------------------------|
| | DETOUR ROUTE |
| | TYPE III BARRICADES |
| | ROAD CLOSED AHEAD W20-3 |
| | WALCOTT ROAD SPECIAL (21"x15") |
| | WALCOTT ROAD SPECIAL (21"x15") |
| | DETOUR M4-8 |
| | M6-3* (* BLACK ON ORANGE) |
| | WALCOTT ROAD SPECIAL (21"x15") |
| | DETOUR M4-8 |
| | W1-6 |
| | WALCOTT ROAD SPECIAL (21"x15") |
| | DETOUR M4-8 |
| | W1-6 |
| | SIDEWALK CLOSED R9-9 |
| | PAVEMENT TO BE REMOVED |

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |

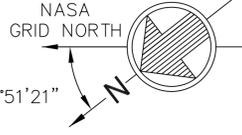
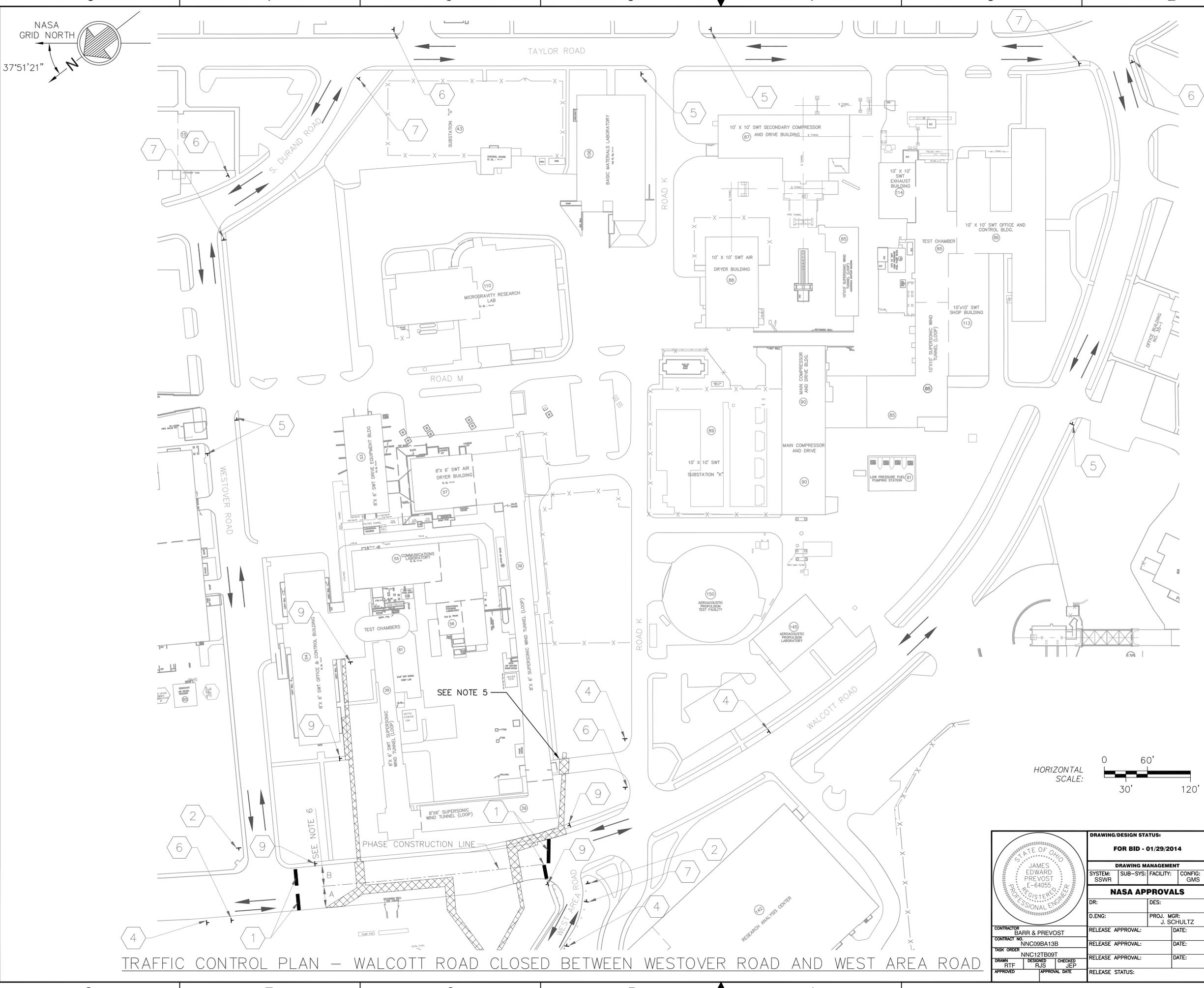
| | | | |
|---|---------------------------|------------|--------------|
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| TRAFFIC CONTROL PLAN OUTFALL 1 WALCOTT ROAD | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISC/TYP SEQ |
| CD STRM - COF20196 - C - 705 | | | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: 1" = 50' | OFFICIAL DATE: 01/29/2014 | | |



| | | | |
|-------------------------------------|------------------------|--|--------------------------|
| CONTRACTOR BARR & PREVOST | | RELEASE APPROVAL: _____ DATE: _____ | |
| CONTRACT NO. NNC09BA13B | | RELEASE APPROVAL: _____ DATE: _____ | |
| TASK ORDER NNC12TB09T | | RELEASE APPROVAL: _____ DATE: _____ | |
| DRAWN RTF | DESIGNED RJS | CHECKED JEP | APPROVED _____ |
| APPROVAL DATE | | RELEASE STATUS: | |

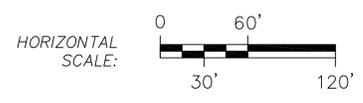
TRAFFIC CONTROL PLAN - WALCOTT ROAD CLOSED AT MARVIN ROAD

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- NOTES:
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 - FOR GENERAL NOTES, REFER TO SHEETS COF20196-G-010 THROUGH COF20196-G-013.
 - FOR TYPE III BARRICADE DETAIL, SEE SHEET COF20196-C-710.
 - FOR STANDARD TRAFFIC NOTES, REFER TO SHEET COF20196-C-701.
 - WORK ON DRIVES FOR BLDG. 39 SHALL BE PERFORMED DURING THE HOURS OF 6:00 PM THROUGH 5:00 AM OR OVER THE WEEKEND. THE CONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS WITH NASA COR.
 - CONTRACTOR TO PROVIDE CONSTRUCTION PHASING A AND B TO ALLOW 2 LANES OF TRAFFIC AT ALL TIMES ON WALCOTT ROAD. OPEN EXCAVATIONS TO BE PROTECTED BY PCB OR DRUMS WITH STEEL PLATE TO COVER OPEN EXCAVATIONS AT NIGHT.

- LEGEND:
- DETOUR ROUTE
 - TYPE III BARRICADES
 - R3-2
 - ROAD CLOSED AHEAD W20-3
 - WALCOTT ROAD SPECIAL (21"x15")
 - WALCOTT ROAD SPECIAL (21"x15")
 - DETOUR M4-8
 - M6-3* (* BLACK ON ORANGE)
 - WALCOTT ROAD SPECIAL (21"x15")
 - DETOUR M4-8
 - DETOUR W1-6
 - WALCOTT ROAD SPECIAL (21"x15")
 - DETOUR M4-8
 - DETOUR W1-6
 - SIDEWALK CLOSED R9-9
 - PAVEMENT TO BE REMOVED

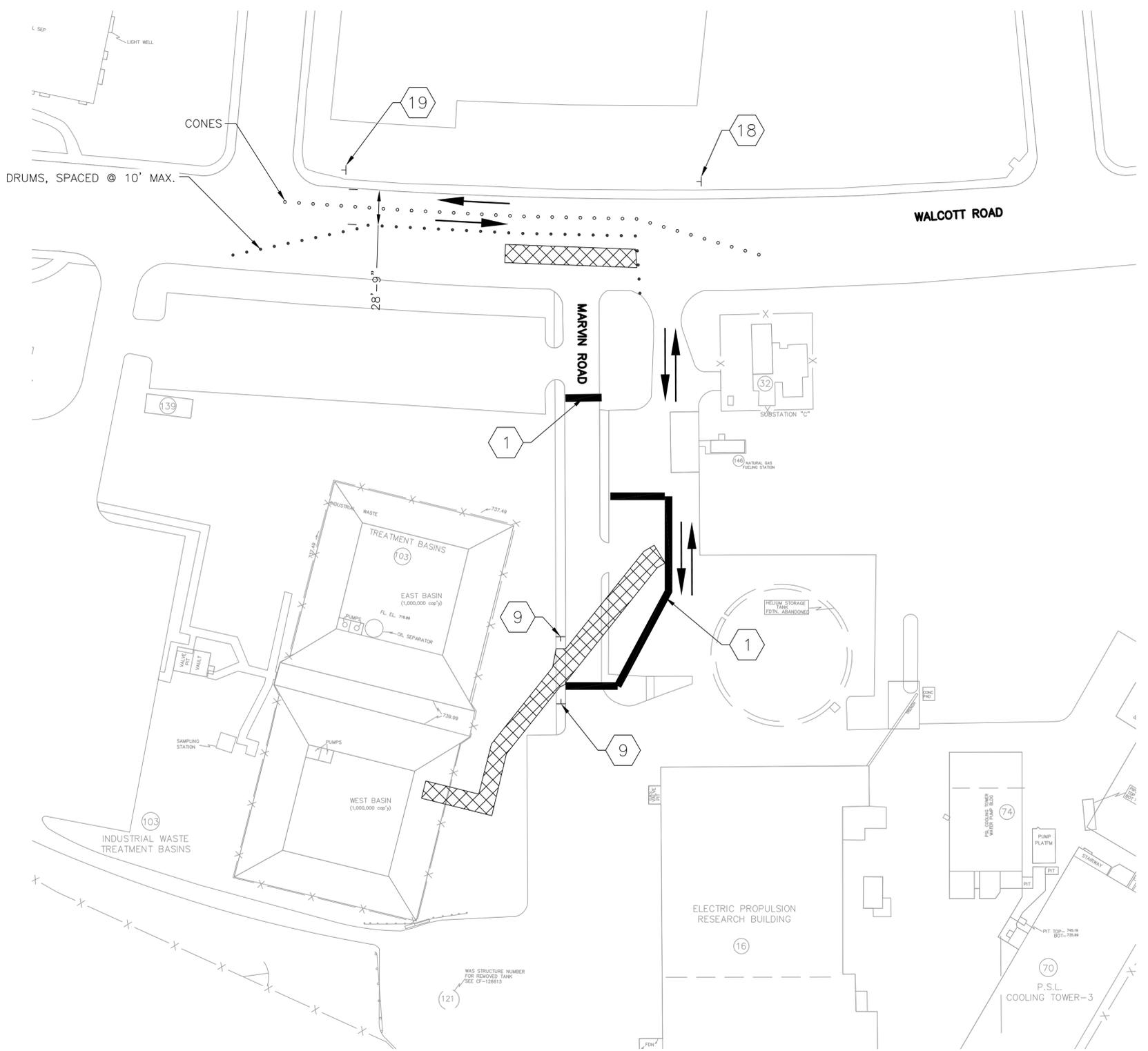
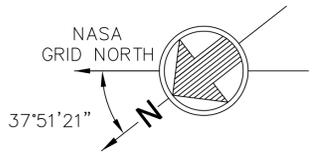


TRAFFIC CONTROL PLAN - WALCOTT ROAD CLOSED BETWEEN WESTOVER ROAD AND WEST AREA ROAD

| | | |
|----------------------------|-------------------------------|--------------------------------|
| | DRAWING/DESIGN STATUS: | |
| | FOR BID - 01/29/2014 | |
| | DRAWING MANAGEMENT | |
| | SYSTEM: SSWR | SUB-SYS: FACILITY: CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| CONTRACTOR: BARR & PREVOST | RELEASE APPROVAL: | DATE: |
| CONTRACT NO: NNC09BA13B | RELEASE APPROVAL: | DATE: |
| TASK ORDER: NNC12TB09T | RELEASE APPROVAL: | DATE: |
| DRAWN: RTF | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: | APPROVAL DATE: | RELEASE STATUS: |

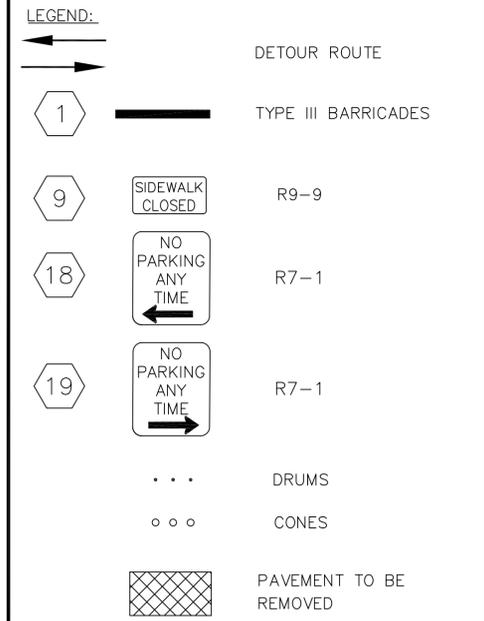
| CHG | NUM | DESCRIPTION | APP/DATE |
|---|---------------------------|-------------|---------------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| TRAFFIC CONTROL PLAN OUTFALLS 1 AND 41 WALCOTT ROAD | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 - C - 706 | | | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: 1" = 60' | OFFICIAL DATE: 01/29/2014 | | |

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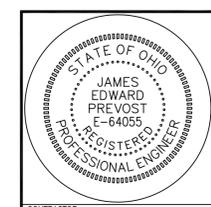
TRAFFIC CONTROL PLAN – MARVIN ROAD CLOSED

- NOTES:
- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - FOR GENERAL NOTES, REFER TO SHEETS COF20196-G-010 THROUGH COF20196-G-013.
 - FOR TYPE III BARRICADE DETAIL, SEE SHEET COF20196-C-710.
 - FOR STANDARD TRAFFIC NOTES, REFER TO SHEET COF20196-C-701.



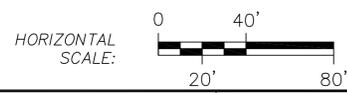
| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |

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|---|---------------------------|------------|---------------|
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| TRAFFIC CONTROL PLAN OUTFALL 1 MARVIN ROAD | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 - C - 707 | | | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: 1" = 40' | OFFICIAL DATE: 01/29/2014 | | |

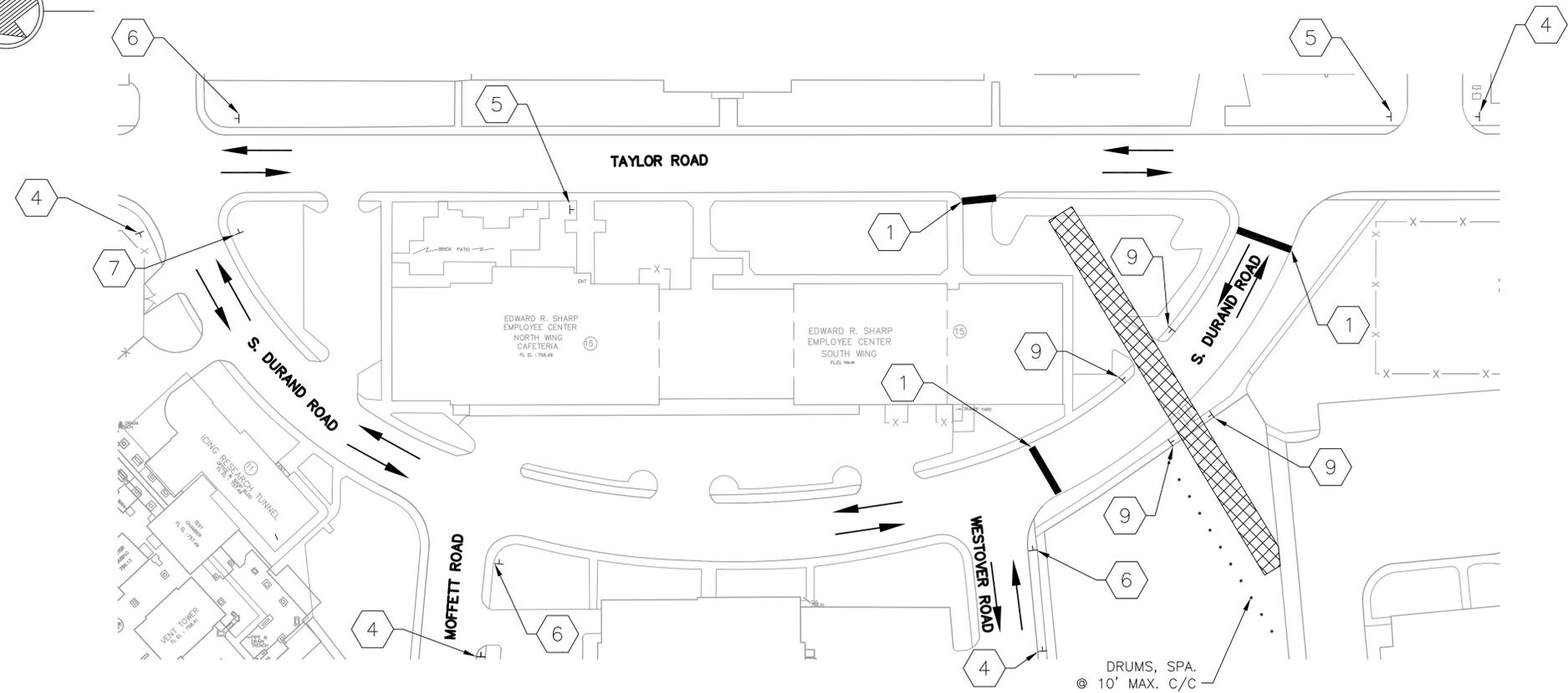
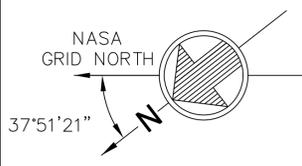


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| DRAWING/DESIGN STATUS: | | |
| FOR BID - 01/29/2014 | | |
| DRAWING MANAGEMENT | | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE STATUS: | | |

| | |
|----------------------------|-------------------------|
| CONTRACTOR: BARR & PREVOST | CONTRACT NO: NNC09BA13B |
| TASK ORDER: NNC12TB09T | |
| DRAWN: RTF | DESIGNED: RJS |
| CHECKED: JEP | APPROVED: [Signature] |
| APPROVAL DATE: | |



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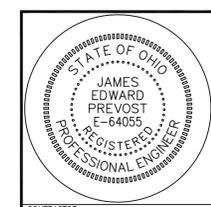
**TRAFFIC CONTROL PLAN – S. DURAND ROAD CLOSED
BETWEEN WESTOVER ROAD AND TAYLOR ROAD**

- NOTES:**
- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - FOR GENERAL NOTES, REFER TO SHEETS COF20196-G-010 THROUGH COF20196-G-013.
 - FOR STANDARD TRAFFIC NOTES, REFER TO SHEET COF20196-C-701.
 - FOR TYPE III BARRICADE DETAIL, SEE SHEET COF20196-C-710.

LEGEND:

| | |
|--|-------------------------------|
| | DETOUR ROUTE |
| | TYPE III BARRICADES |
| | ROAD CLOSED AHEAD W20-3 |
| | DURAND ROAD SPECIAL (21"x15") |
| | DURAND ROAD SPECIAL (21"x15") |
| | DETOUR M4-8 |
| | M6-3* (* BLACK ON ORANGE) |
| | DURAND ROAD SPECIAL (21"x15") |
| | DETOUR M4-8 |
| | W1-6 |
| | DURAND ROAD SPECIAL (21"x15") |
| | DETOUR M4-8 |
| | W1-6 |
| | SIDEWALK CLOSED R9-9 |
| | DRUMS |
| | PAVEMENT TO BE REMOVED |

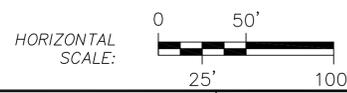
| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |



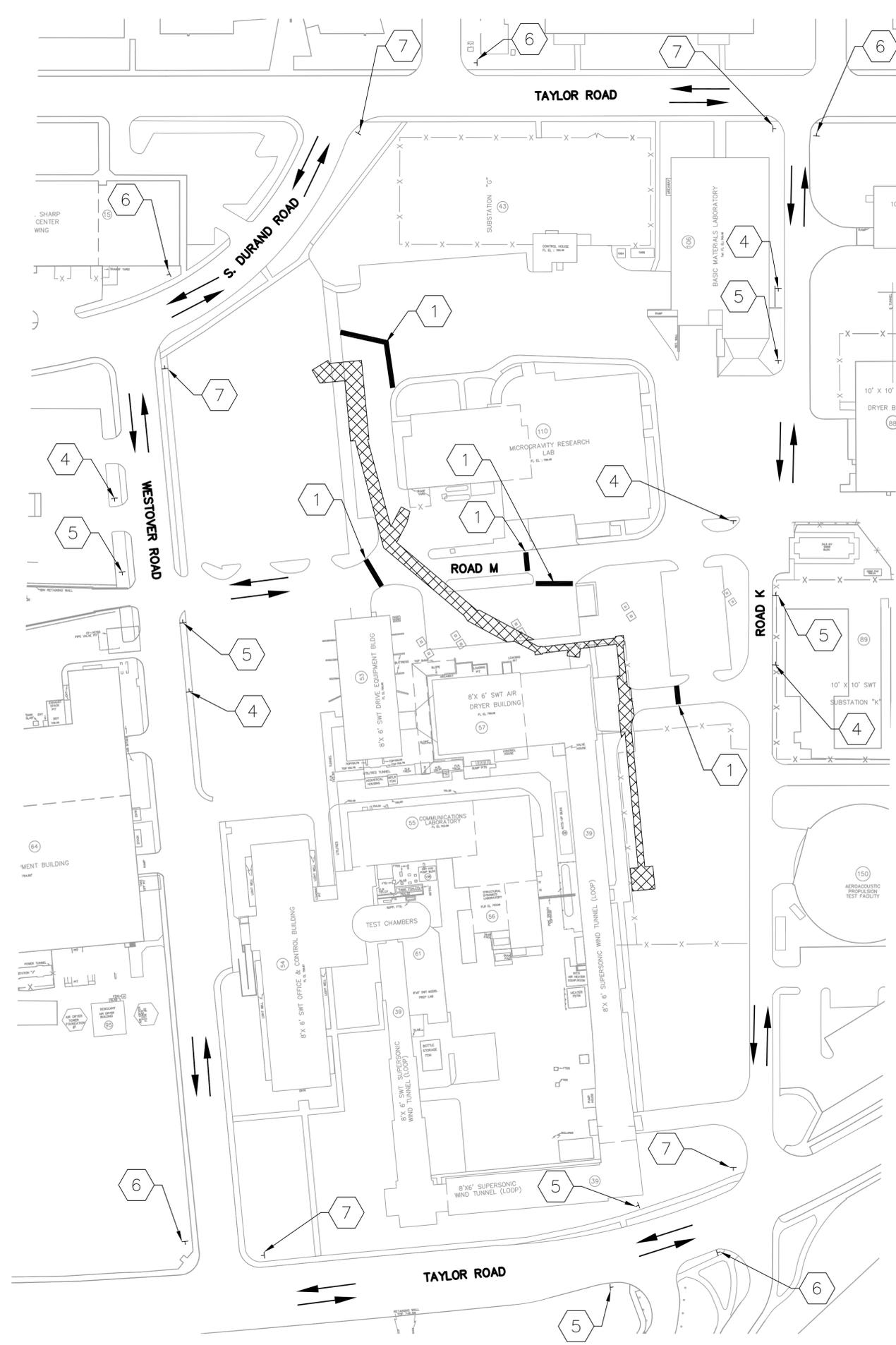
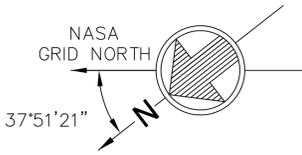
DRAWING/DESIGN STATUS:
FOR BID - 01/29/2014

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| SYSTEM: SSWR | SUB-SYS: | FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | | |
| DR: | DES: | | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | | |
| RELEASE APPROVAL: | DATE: | | |
| RELEASE APPROVAL: | DATE: | | |
| RELEASE APPROVAL: | DATE: | | |
| RELEASE STATUS: | | | |

| | | | |
|---|---------------------------|------------|--------------|
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| TRAFFIC CONTROL PLAN OUTFALL 6 S. DURAND ROAD | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISC/TYP SEQ |
| CD STRM - COF20196 - C - 708 | | | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: 1" = 50' | OFFICIAL DATE: 01/29/2014 | | |

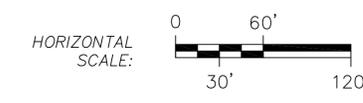


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 - FOR GENERAL NOTES, REFER TO SHEETS COF20196-G-010 THROUGH COF20196-G-013.
 - FOR TYPE III BARRICADE DETAIL, SEE SHEET COF20196-C-710.
 - FOR STANDARD TRAFFIC NOTES, REFER TO SHEET COF20196-C-701.
 - WORK ON DRIVE FOR BLDG. 57 SHALL BE PERFORMED DURING THE HOURS OF 6:00 PM THROUGH 5:00 AM OR OVER THE WEEKEND. THE CONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS WITH NASA COR.
 - CONTRACTOR TO PROVIDE PHASING SUBMISSION PLAN TO NASA CM PRIOR TO CLOSING PARKING LOTS

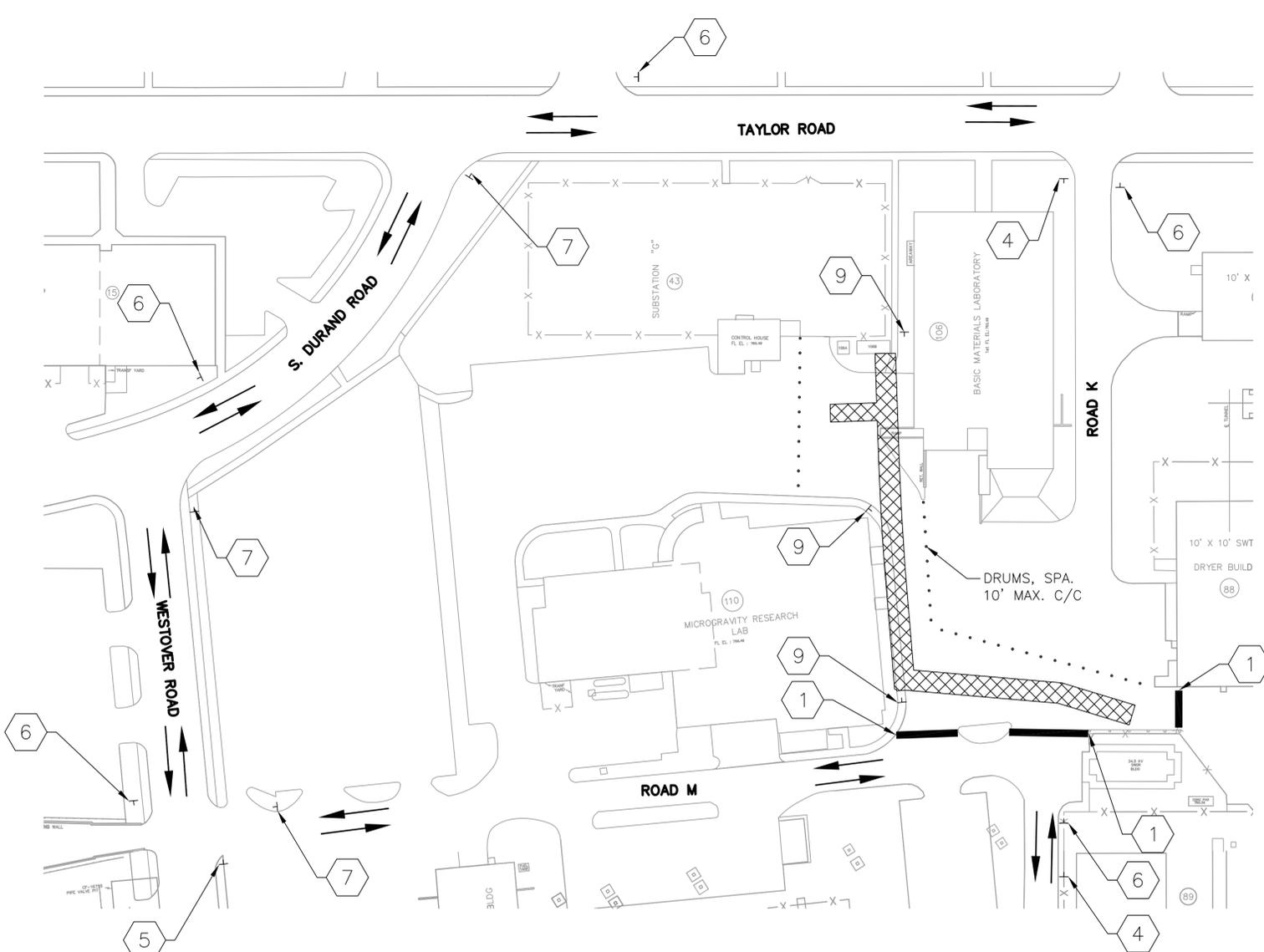
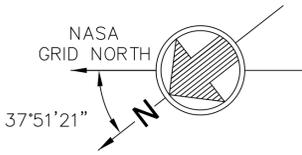
- LEGEND:
- DETOUR ROUTE
 - TYPE III BARRICADES
 - ROAD CLOSED AHEAD W20-3
 - ROAD M SPECIAL (21"x15")
 - ROAD M SPECIAL (21"x15")
 - DETOUR M4-8
 - M6-3* (* BLACK ON ORANGE)
 - ROAD M SPECIAL (21"x15")
 - DETOUR M4-8
 - W1-6
 - ROAD M SPECIAL (21"x15")
 - DETOUR M4-8
 - W1-6
 - PAVEMENT TO BE REMOVED



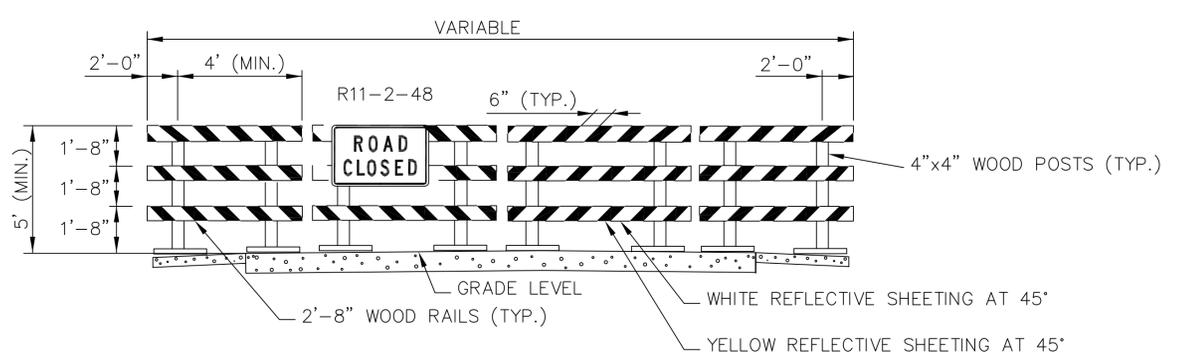
TRAFFIC CONTROL PLAN - ROAD M CLOSED

| | | | | |
|----------------------------|-------------------------------|----------------------|--|---|
| | DRAWING/DESIGN STATUS: | | NATIONAL AERONAUTICS AND SPACE ADMINISTRATION | |
| | FOR BID - 01/29/2014 | | JOHN H. GLENN RESEARCH CENTER | |
| | DRAWING MANAGEMENT | | LEWIS FIELD & PLUM BROOK STATION, OHIO | |
| | SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS | FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 |
| NASA APPROVALS | | TRAFFIC CONTROL PLAN | | |
| DR: | DES: | OUTFALL 6 | | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | ROAD M | | |
| CONTRACTOR: BARR & PREVOST | RELEASE APPROVAL: | DATE: | SIZE: | BLDG/SYS: |
| CONTRACT NO: NNC09BA13B | RELEASE APPROVAL: | DATE: | PROJECT ID: | DISC: |
| TASK ORDER: NNC12TB09T | RELEASE APPROVAL: | DATE: | CD STRM - COF20196 - C - 709 | |
| DRAWN: RTF | DESIGNED: RJS | CHECKED: JEP | AREA: NASA GLENN RESEARCH CENTER | SHEET OF |
| APPROVED: | APPROVAL DATE: | RELEASE STATUS: | UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 |
| | | | SCALE: 1" = 60' | OFFICIAL DATE: 01/29/2014 |

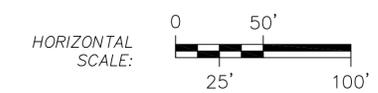
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TRAFFIC CONTROL PLAN - ROAD K CLOSED



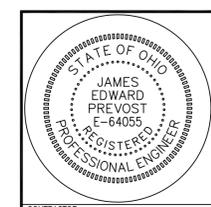
STANDARD BARRICADE, TYPE III
(NOT TO SCALE)



- NOTES:
- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - FOR GENERAL NOTES, REFER TO SHEETS COF20196-G-010 THROUGH COF20196-G-013.
 - FOR STANDARD TRAFFIC NOTES, REFER TO SHEET COF20196-C-701.

- LEGEND:
- DETOUR ROUTE
 - TYPE III BARRICADES
 - ROAD CLOSED AHEAD W20-3
 - ROAD K SPECIAL (21"x15")
 - ROAD K SPECIAL (21"x15")
 - DETOUR M4-8
 - M6-3* (* BLACK ON ORANGE)
 - ROAD K SPECIAL (21"x15")
 - DETOUR M4-8
 - W1-6
 - ROAD K SPECIAL (21"x15")
 - DETOUR M4-8
 - W1-6
 - SIDEWALK CLOSED R9-9
 - DRUMS
 - PAVEMENT TO BE REMOVED

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |



| | | |
|-------------------------------|-----------------------|-------------|
| DRAWING/DESIGN STATUS: | | |
| FOR BID - 01/29/2014 | | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| RELEASE APPROVAL: | DATE: | |

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

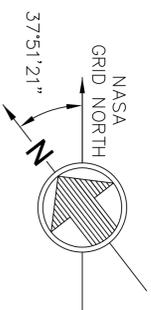
FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

TRAFFIC CONTROL PLAN
OUTFALL 6
ROAD K

| | | |
|----------------------------|-------------------|-----------------|
| CONTRACTOR: BARR & PREVOST | RELEASE APPROVAL: | DATE: |
| CONTRACT NO: NNC09BA13B | RELEASE APPROVAL: | DATE: |
| TASK ORDER: NNC12TB09T | RELEASE APPROVAL: | DATE: |
| DRAWN: RTF | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: | APPROVAL DATE: | RELEASE STATUS: |

| | | | | |
|----------------------------------|---------------------------|-------------|-------|----------|
| SIZE: | BLDG/SYS: | PROJECT ID: | DISC: | TYP SEQ: |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION: | VER | |
| SCALE: 1" = 50' | OFFICIAL DATE: 01/29/2014 | | | |

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6 - VEHICLE SIGNAL TIMING CHART

| φ1 | φ2 | φ3 | φ4 |
|----|--------|----|--------|
| 35 | 17G/3Y | 40 | 22G/3Y |
| ↓ | ↓ | ↓ | ↓ |
| ← | → | ← | ← |
| ↑ | ↑ | ↑ | ↑ |

10 - VEHICLE SIGNAL TIMING CHART

| φ1 | φ2 | φ3 | φ4 |
|----|--------|----|--------|
| 35 | 25G/3Y | 40 | 30G/3Y |
| ↓ | ↓ | ↓ | ↓ |
| ← | → | ← | ← |
| ↑ | ↑ | ↑ | ↑ |

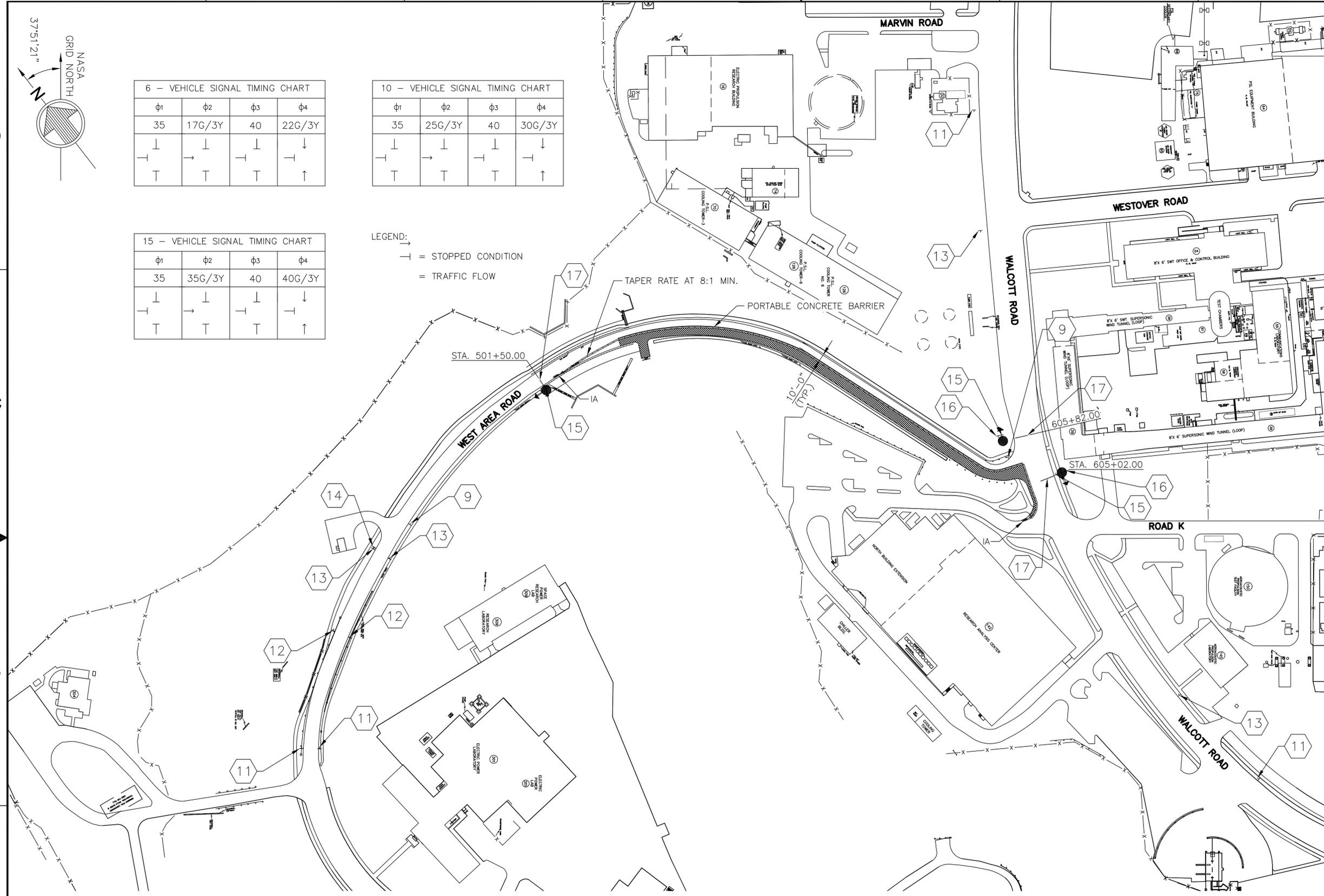
15 - VEHICLE SIGNAL TIMING CHART

| φ1 | φ2 | φ3 | φ4 |
|----|--------|----|--------|
| 35 | 35G/3Y | 40 | 40G/3Y |
| ↓ | ↓ | ↓ | ↓ |
| ← | → | ← | ← |
| ↑ | ↑ | ↑ | ↑ |

LEGEND:
 = STOPPED CONDITION
 = TRAFFIC FLOW

- NOTES:
- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - FOR GENERAL NOTES, REFER TO SHEETS COF20196-G-010 THROUGH COF20196-G-013.
 - FOR STANDARD TRAFFIC NOTES, REFER TO SHEET COF20196-C-701. AND FOR TEMP. TRAFFIC SIGNALS, SEE SHEET COF20196-G-012.
 - FOR ADDITIONAL TEMPORARY TRANSFER DETAILS AND SIGNING, SEE ODOT STANDARD DRAWINGS MT-96.11 AND MT-96.20.
 - CONTRACTOR SHALL CONFORM TO THE OUMTCD FOR ALL TRAFFIC DETOUR AND CLOSURE PLANS.
 - CONTRACTOR SHALL SUBMIT SIGNAL DETAILS AND PLANS FOR APPROVAL BY NASA.
 - CONTRACTOR TO ADJUST SIGNAL TIMING IN THE FIELD TO THE SATISFACTION OF NASA.
 - CONTRACTOR SHALL MAINTAIN TWO OPEN LANES OF TRAFFIC DURING NOVEMBER THROUGH APRIL.
 - CONTRACTOR SHALL SCHEDULE FLAGGING CREWS FOR THE FIRST WEEK IN WHICH THE TEMPORARY TRAFFIC SIGNAL IS IN PLACE.
 - A 12" BULB SIZE SHALL BE USED FOR THE TRAFFIC SIGNAL.

- | | |
|--|----------------------|
| | R9-9 |
| | TYPE A WARNING LIGHT |
| | W20-1 |
| | TYPE A WARNING LIGHT |
| | W20-4 |
| | W3-3 |
| | G20-2 |
| | R10-6 |
| | R10-11 |
| | WORK ZONE STOP LINE |



LEGEND:
 PORTABLE CONCRETE BARRIER
 TEMPORARY SHOULDER LINE
 WORK ZONE
 TEMPORARY TRAFFIC SIGNAL AHEAD
 IMPACT ATTENUATOR (IA)

STATE OF OHIO
 JAMES EDWARD PREVOST
 E-64065
 REGISTERED PROFESSIONAL ENGINEER

DRAWING/DESIGN STATUS:
 FOR BID - 01/29/2014

DRAWING MANAGEMENT
 SYSTEM: SSWR SUB-SYS: FACILITY: CONFIG: GMS

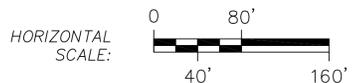
NASA APPROVALS
 DR: DES:
 D.ENG: PROJ. MGR: J. SCHULTZ

CONTRACTOR: BARR & PREVOST
 CONTRACT NO: NNC09BA13B
 TASK ORDER: NNC12TB09T
 DRAWN: RTF DESIGNED: RJS CHECKED: JEP APPROVED: APPROVAL DATE

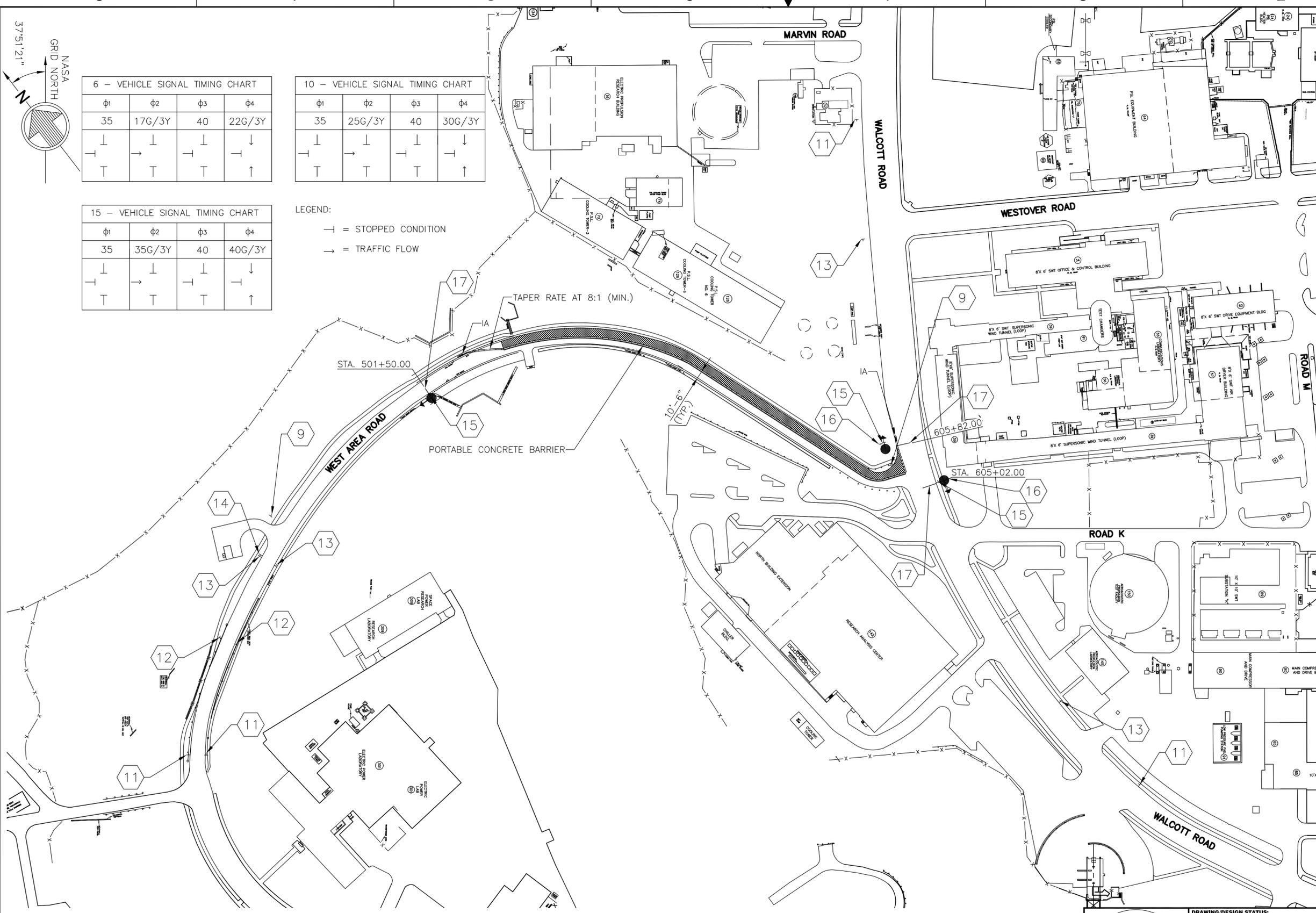
RELEASE APPROVAL: DATE:
 RELEASE APPROVAL: DATE:
 RELEASE APPROVAL: DATE:
 RELEASE STATUS:

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|---------------------------|-------------|---------------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JOHN H. GLENN RESEARCH CENTER LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| TRAFFIC CONTROL PLAN WEST AREA ROAD PHASE 1 | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 - C - 711 | | | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET | OF |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: 1" = 80' | OFFICIAL DATE: 01/29/2014 | | |

TRAFFIC CONTROL PLAN - WEST AREA ROAD PART WIDTH CONSTRUCTION - PHASE 1



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6 - VEHICLE SIGNAL TIMING CHART

| φ1 | φ2 | φ3 | φ4 |
|----|--------|----|--------|
| 35 | 17G/3Y | 40 | 22G/3Y |
| ↓ | ↓ | ↓ | ↓ |
| ↑ | ↑ | ↑ | ↑ |

10 - VEHICLE SIGNAL TIMING CHART

| φ1 | φ2 | φ3 | φ4 |
|----|--------|----|--------|
| 35 | 25G/3Y | 40 | 30G/3Y |
| ↓ | ↓ | ↓ | ↓ |
| ↑ | ↑ | ↑ | ↑ |

15 - VEHICLE SIGNAL TIMING CHART

| φ1 | φ2 | φ3 | φ4 |
|----|--------|----|--------|
| 35 | 35G/3Y | 40 | 40G/3Y |
| ↓ | ↓ | ↓ | ↓ |
| ↑ | ↑ | ↑ | ↑ |

LEGEND:
 — = STOPPED CONDITION
 → = TRAFFIC FLOW

LEGEND:
 PORTABLE CONCRETE BARRIER
 TEMPORARY SHOULDER LINE
 WORK ZONE
 TEMPORARY TRAFFIC SIGNAL HEAD
 IMPACT ATTENUATOR (IA)

- NOTES:
- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - FOR GENERAL NOTES, REFER TO SHEETS COF20196-G-010 THROUGH COF20196-G-013. AND FOR TEMP. TRAFFIC SIGNALS, SEE SHEET COF20196-G-012.
 - FOR STANDARD TRAFFIC NOTES, REFER TO SHEET COF20196-C-701.
 - FOR ADDITIONAL TEMPORARY TRANSFER DETAILS AND SIGNING, SEE ODOT STANDARD DRAWINGS MT-96.11 AND MT-96.20.
 - CONTRACTOR SHALL CONFORM TO THE OMUTCD FOR ALL TRAFFIC DETOUR AND CLOSURE PLANS.
 - CONTRACTOR SHALL SUBMIT SIGNAL DETAILS AND PLANS FOR APPROVAL BY NASA.
 - CONTRACTOR TO ADJUST SIGNAL TIMING IN THE FIELD TO THE SATISFACTION OF NASA.
 - CONTRACTOR SHALL MAINTAIN TWO OPEN LANES OF TRAFFIC DURING NOVEMBER THROUGH APRIL.
 - CONTRACTOR SHALL SCHEDULE FLAGGING CREWS FOR THE FIRST WEEK IN WHICH THE TEMPORARY TRAFFIC SIGNAL IS IN PLACE.
 - A 12" BULB SIZE SHALL BE USED FOR THE TRAFFIC SIGNAL.

- | | |
|--|----------------------|
| | R9-9 |
| | TYPE A WARNING LIGHT |
| | W20-1 |
| | TYPE A WARNING LIGHT |
| | W20-4 |
| | G20-2 |
| | R10-6 |
| | R10-11 |
| | WORK ZONE STOP LINE |

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |

STATE OF OHIO
 JAMES EDWARD PREVOST
 E-64065
 REGISTERED PROFESSIONAL ENGINEER

DRAWING/DESIGN STATUS:
 FOR BID - 01/29/2014

DRAWING MANAGEMENT
 SYSTEM: SSWR SUB-SYS: FACILITY: CONFIG: GMS

NASA APPROVALS
 DR: DES:
 D.ENG: PROJ. MGR: J. SCHULTZ

CONTRACTOR: BARR & PREVOST
 CONTRACT NO.: NNC09BA13B
 TASK ORDER: NNC12TB09T

DRAWN: RTF DESIGNED: RJS CHECKED: JEP APPROVED: APPROVAL DATE

RELEASE APPROVAL: DATE: RELEASE APPROVAL: DATE: RELEASE APPROVAL: DATE: RELEASE STATUS:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
 JOHN H. GLENN RESEARCH CENTER
 LEWIS FIELD & PLUM BROOK STATION, OHIO

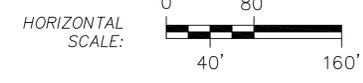
FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

TRAFFIC CONTROL PLAN
 WEST AREA ROAD
 PHASE 2

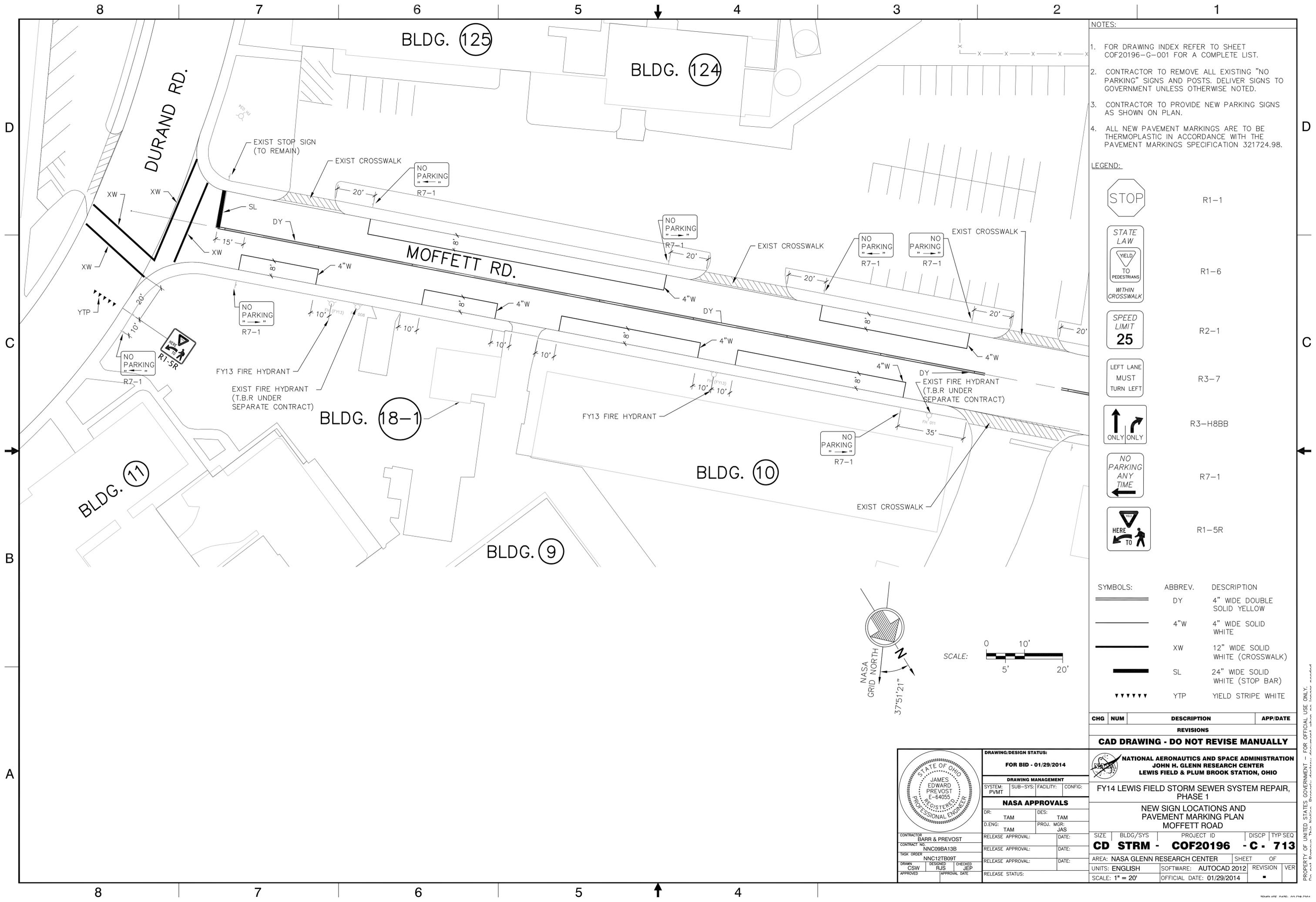
SIZE: BLDG/SYS PROJECT ID DISCP TYP SEQ
CD STRM - COF20196 - C - 712

AREA: NASA GLENN RESEARCH CENTER SHEET OF
 UNITS: ENGLISH SOFTWARE: AUTOCAD 2012 REVISION VER
 SCALE: 1" = 80' OFFICIAL DATE: 01/29/2014

TRAFFIC CONTROL PLAN - WEST AREA ROAD PART WIDTH CONSTRUCTION - PHASE 2



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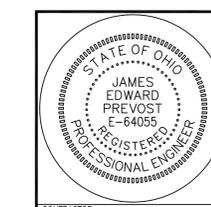
- NOTES:
- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - CONTRACTOR TO REMOVE ALL EXISTING "NO PARKING" SIGNS AND POSTS. DELIVER SIGNS TO GOVERNMENT UNLESS OTHERWISE NOTED.
 - CONTRACTOR TO PROVIDE NEW PARKING SIGNS AS SHOWN ON PLAN.
 - ALL NEW PAVEMENT MARKINGS ARE TO BE THERMOPLASTIC IN ACCORDANCE WITH THE PAVEMENT MARKINGS SPECIFICATION 321724.98.

- LEGEND:
- R1-1
 - R1-6
 - R2-1
 - R3-7
 - R3-H8BB
 - R7-1
 - R1-5R

SYMBOLS:

| SYMBOLS: | ABBREV. | DESCRIPTION |
|----------|---------|----------------------------------|
| | DY | 4" WIDE DOUBLE SOLID YELLOW |
| | 4"W | 4" WIDE SOLID WHITE |
| | XW | 12" WIDE SOLID WHITE (CROSSWALK) |
| | SL | 24" WIDE SOLID WHITE (STOP BAR) |
| | YTP | YIELD STRIPE WHITE |

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |



DRAWING/DESIGN STATUS:
FOR BID - 01/29/2014

DRAWING MANAGEMENT

| | | |
|--------------|--------------------|---------|
| SYSTEM: PVMT | SUB-SYS: FACILITY: | CONFIG: |
|--------------|--------------------|---------|

NASA APPROVALS

| | |
|------------|----------------|
| DR: TAM | DES: TAM |
| D.ENG: TAM | PROJ. MGR: JAS |

RELEASE APPROVAL: _____ DATE: _____

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

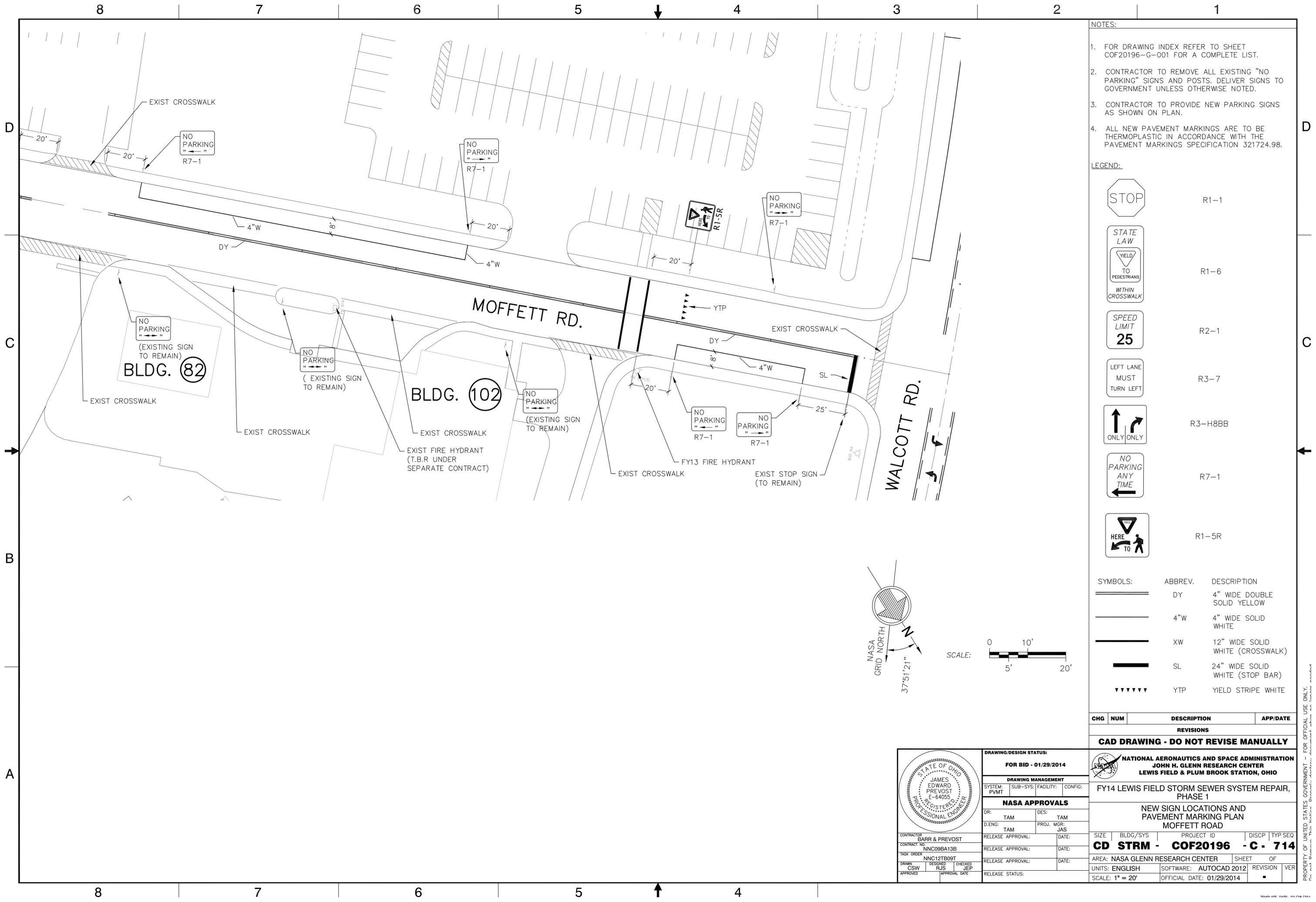
NEW SIGN LOCATIONS AND PAVEMENT MARKING PLAN
MOFFETT ROAD

| | | | | |
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| CD STRM - COF20196 | | - C - 713 | | |
| AREA: NASA GLENN RESEARCH CENTER | SHEET OF | | | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER | |
| SCALE: 1" = 20' | OFFICIAL DATE: 01/29/2014 | | | |

| | | |
|----------------------------|-------------------------|--------------|
| CONTRACTOR: BARR & PREVOST | CONTRACT NO: NNC09BA13B | |
| TASK ORDER: NNC12TB09T | | |
| DRAWN: CSW | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: _____ | APPROVAL DATE: _____ | |

| | |
|-------------------------|-------------|
| RELEASE APPROVAL: _____ | DATE: _____ |
| RELEASE APPROVAL: _____ | DATE: _____ |
| RELEASE APPROVAL: _____ | DATE: _____ |
| RELEASE STATUS: _____ | |

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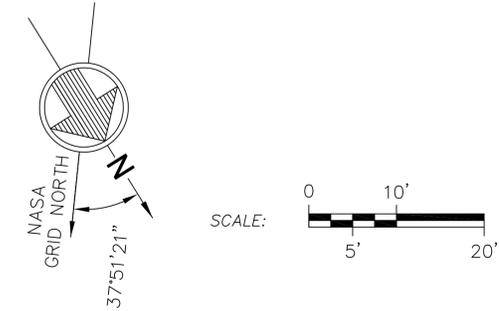


- NOTES:
- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - CONTRACTOR TO REMOVE ALL EXISTING "NO PARKING" SIGNS AND POSTS. DELIVER SIGNS TO GOVERNMENT UNLESS OTHERWISE NOTED.
 - CONTRACTOR TO PROVIDE NEW PARKING SIGNS AS SHOWN ON PLAN.
 - ALL NEW PAVEMENT MARKINGS ARE TO BE THERMOPLASTIC IN ACCORDANCE WITH THE PAVEMENT MARKINGS SPECIFICATION 321724.98.

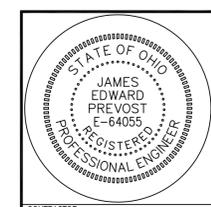
- LEGEND:
- R1-1
 - R1-6
 - R2-1
 - R3-7
 - R3-H8BB
 - R7-1
 - R1-5R

SYMBOLS:

| SYMBOLS: | ABBREV. | DESCRIPTION |
|----------|---------|----------------------------------|
| | DY | 4" WIDE DOUBLE SOLID YELLOW |
| | 4"W | 4" WIDE SOLID WHITE |
| | XW | 12" WIDE SOLID WHITE (CROSSWALK) |
| | SL | 24" WIDE SOLID WHITE (STOP BAR) |
| | YTP | YIELD STRIPE WHITE |



| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |



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FOR BID - 01/29/2014

DRAWING MANAGEMENT

| | | | |
|--------------|----------|-----------|---------|
| SYSTEM: PVMT | SUB-SYS: | FACILITY: | CONFIG: |
|--------------|----------|-----------|---------|

NASA APPROVALS

| | |
|------------|----------------|
| DR: TAM | DES: TAM |
| D.ENG: TAM | PROJ. MGR: JAS |

RELEASE APPROVAL: _____ DATE: _____

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

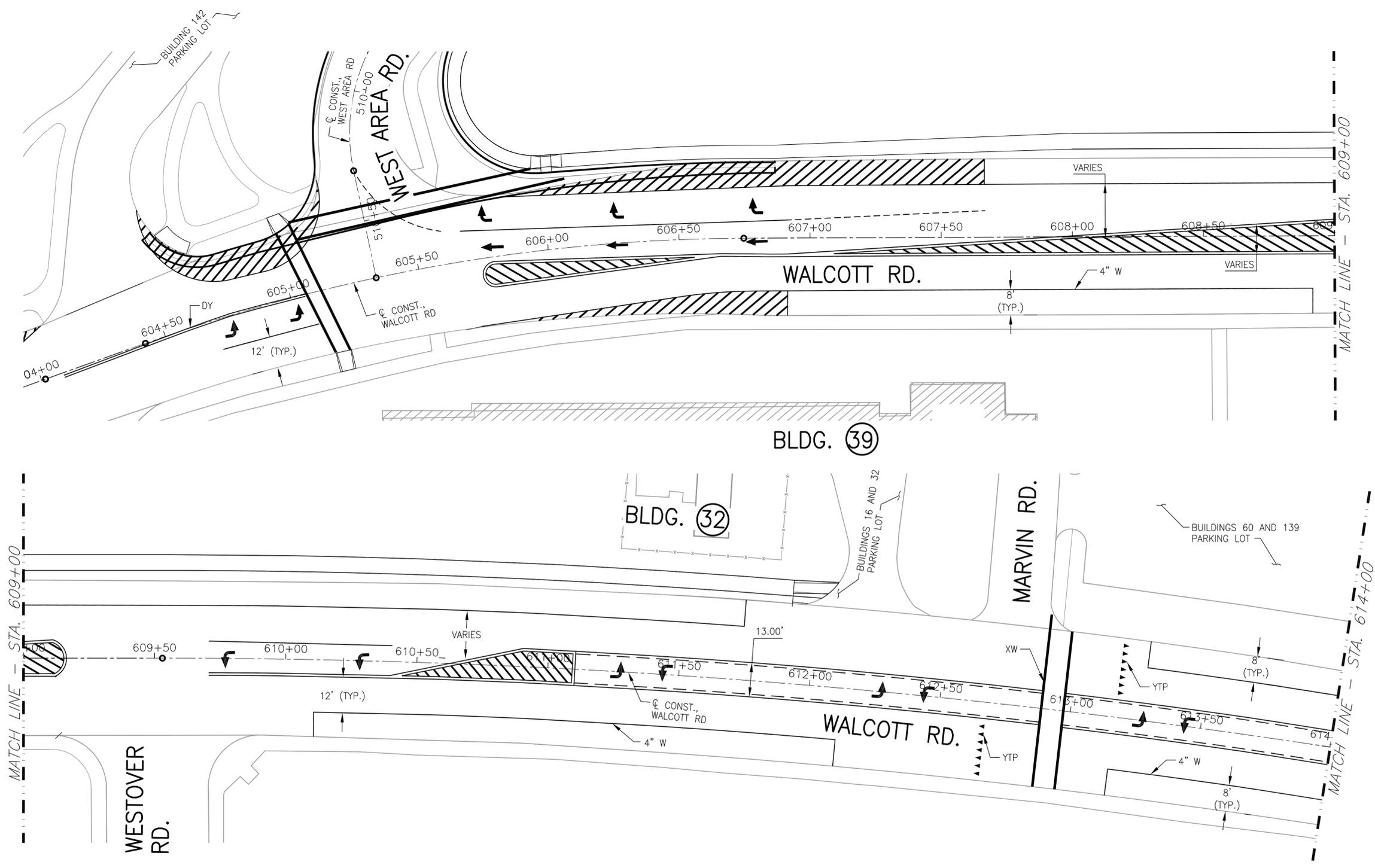
NEW SIGN LOCATIONS AND PAVEMENT MARKING PLAN
MOFFETT ROAD

| | | | | |
|----------------------------------|---------------------------|-----------------|--------------|------------|
| SIZE | BLDG/SYS | PROJECT ID | DISCP | TYP SEQ |
| CD STRM | | COF20196 | - C - | 714 |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER | |
| SCALE: 1" = 20' | OFFICIAL DATE: 01/29/2014 | | | |

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| CONTRACTOR: BARR & PREVOST | RELEASE APPROVAL: _____ | DATE: _____ |
| CONTRACT NO: NNC09BA13B | RELEASE APPROVAL: _____ | DATE: _____ |
| TASK ORDER: NNC12TB09T | RELEASE APPROVAL: _____ | DATE: _____ |
| DRAWN: CSW | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: _____ | APPROVAL DATE: _____ | |

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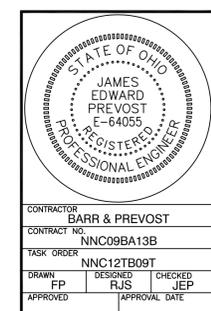
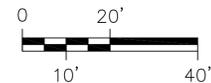
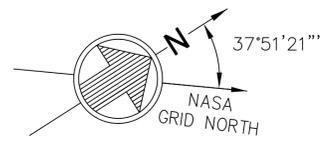
- NOTES:
- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - FOR WEST AREA ROAD PAVEMENT MARKING PLANS, SEE SHEETS C-717



LEGEND:

| SYMBOLS: | ABBREV. | DESCRIPTION |
|----------|---------|----------------------------------|
| | DY | 4" WIDE DOUBLE SOLID YELLOW |
| | 4"W | 4" WIDE SOLID WHITE |
| | XW | 12" WIDE SOLID WHITE (CROSSWALK) |
| | SL | 24" WIDE SOLID WHITE (STOP BAR) |
| | YTP | YIELD STRIPE WHITE |
| | DL | DOTTED LINE |
| | DL | DOTTED LINE |

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |



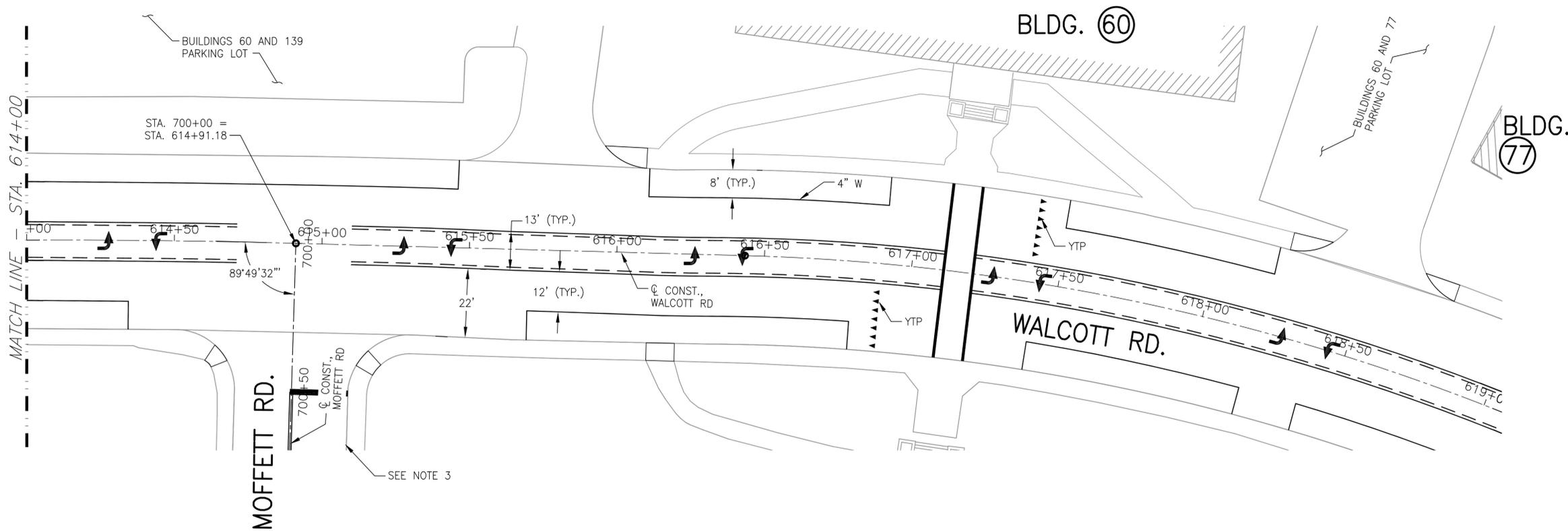
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| DRAWING/DESIGN STATUS: | | |
| FOR BID - 01/29/2014 | | |
| DRAWING MANAGEMENT | | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE STATUS: | | |

| | | | |
|---|---------------------------|------------------|---------------|
| NATIONAL AERONAUTICS AND SPACE ADMINISTRATION | | | |
| JOHN H. GLENN RESEARCH CENTER | | | |
| LEWIS FIELD & PLUM BROOK STATION, OHIO | | | |
| FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1 | | | |
| WALCOTT ROAD PAVEMENT MARKING PLAN STA. 604+00 TO STA. 614+00 | | | |
| SIZE | BLDG/SYS | PROJECT ID | DISCP TYP SEQ |
| CD STRM - COF20196 | | - C - 715 | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER |
| SCALE: AS NOTED | OFFICIAL DATE: 01/29/2014 | | |

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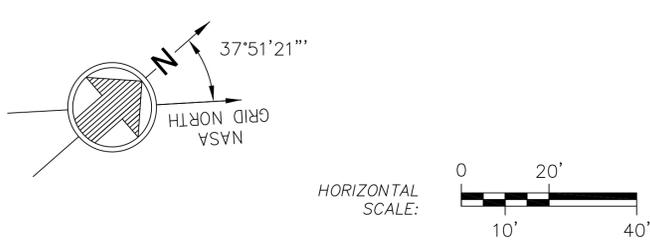
- NOTES:
- FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 - REFER TO SHEETS C-713 AND C-714 FOR MOFFETT RD. PAVEMENT MARKING PLANS.

- LEGEND:
- (A) EX. ASPHALT PAVEMENT
 - (B) EX. ASPHALT CONCRETE BASE
 - (C) EX. AGGREGATE BASE
 - (D) EX. CONCRETE CURB
 - (E) EX. UNDERDRAIN



| SYMBOLS: | ABBREV. | DESCRIPTION |
|----------|---------|----------------------------------|
| | DY | 4" WIDE DOUBLE SOLID YELLOW |
| | 4"W | 4" WIDE SOLID WHITE |
| | XW | 12" WIDE SOLID WHITE (CROSSWALK) |
| | SL | 24" WIDE SOLID WHITE (STOP BAR) |
| | YTP | YIELD STRIPE WHITE |

| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |



DRAWING/DESIGN STATUS:
FOR BID - 01/29/2014

| | | |
|---------------------------|-----------------------|-------------|
| DRAWING MANAGEMENT | | |
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: J. SCHULTZ | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE APPROVAL: | DATE: | |
| RELEASE STATUS: | | |

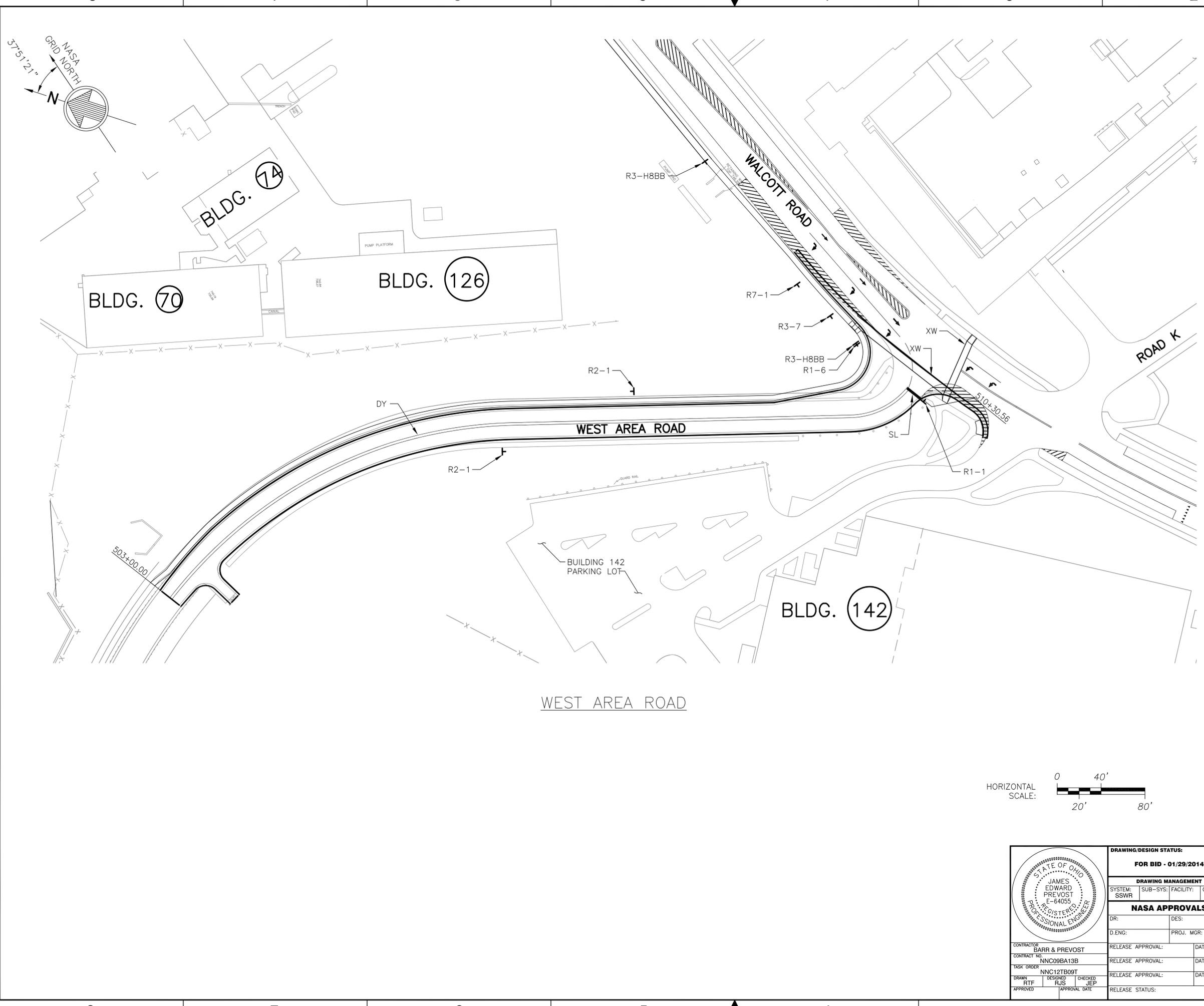
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1

WALCOTT ROAD
PAVEMENT MARKING PLAN
STA. 614+00 TO STA. 619+00

| | | | | |
|-------------------------------------|---------------------------|------------|-------|---------|
| SIZE | BLDG/SYS | PROJECT ID | DISCP | TYP SEQ |
| CD STRM - COF20196 - C - 716 | | | | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION | VER | |
| SCALE: AS NOTED | OFFICIAL DATE: 01/29/2014 | | | |

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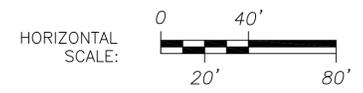
- NOTES:**
1. ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE 2013 ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS, ODOT CD, TEM AND STANDARD CONSTRUCTION DRAWINGS.
 2. CONTRACTOR SHALL PROVIDE ANY NECESSARY PAVEMENT MARKINGS AFFECTED DURING CONSTRUCTION.
 3. FOR DRAWING INDEX REFER TO SHEET COF20196-G-001 FOR A COMPLETE LIST.
 4. FOR WALCOTT ROAD PAVEMENT MARKING PLANS, SEE SHEETS C-715 AND C-716

LEGEND:

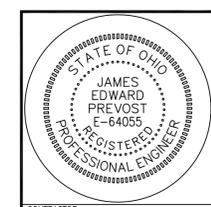
| | |
|--|---------|
| | R1-1 |
| | R1-6 |
| | R2-1 |
| | R3-7 |
| | R3-H8BB |
| | R7-1 |

SYMBOLS:

| SYMBOLS: | ABBREV. | DESCRIPTION |
|----------|---------|----------------------------------|
| | DY | 4" WIDE DOUBLE SOLID YELLOW |
| | 4"W | 4" WIDE SOLID WHITE |
| | XW | 12" WIDE SOLID WHITE (CROSSWALK) |
| | SL | 24" WIDE SOLID WHITE (STOP BAR) |
| | YTP | YIELD STRIPE WHITE |



| CHG | NUM | DESCRIPTION | APP/DATE |
|---|-----|-------------|----------|
| REVISIONS | | | |
| CAD DRAWING - DO NOT REVISE MANUALLY | | | |



DRAWING/DESIGN STATUS:
FOR BID - 01/29/2014

| | | |
|-----------------------|--------------------|-------------|
| SYSTEM: SSWR | SUB-SYS: FACILITY: | CONFIG: GMS |
| NASA APPROVALS | | |
| DR: | DES: | |
| D.ENG: | PROJ. MGR: | |

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN H. GLENN RESEARCH CENTER
LEWIS FIELD & PLUM BROOK STATION, OHIO

FY14 LEWIS FIELD STORM SEWER SYSTEM REPAIR, PHASE 1
 PAVEMENT MARKING PLAN
 OUTFALL 41 AND WEST AREA ROAD

| | | |
|----------------------------|-------------------|-----------------|
| CONTRACTOR: BARR & PREVOST | RELEASE APPROVAL: | DATE: |
| CONTRACT NO: NNC09BA13B | RELEASE APPROVAL: | DATE: |
| TASK ORDER: NNC12TB09T | RELEASE APPROVAL: | DATE: |
| DRAWN: RTF | DESIGNED: RJS | CHECKED: JEP |
| APPROVED: | APPROVAL DATE: | RELEASE STATUS: |

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| CD STRM | | COF20196 | - C - 717 | |
| AREA: NASA GLENN RESEARCH CENTER | | SHEET OF | | |
| UNITS: ENGLISH | SOFTWARE: AUTOCAD 2012 | REVISION: | VER: | |
| SCALE: 1" = 40' | OFFICIAL DATE: 01/29/2014 | | | |

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