

GODWIN BLVD. AND KINGS HIGHWAY INTERSECTION IMPROVEMENTS STATE PROJECT 0010-133-378 (UPC 104332)

From: 120' South of Kings Highway
To: 180' North of Kings Highway

DEPARTMENT OF PUBLIC WORKS SUFFOLK, VIRGINIA

NOT FOR
CONSTRUCTION
90%
SUBMITTAL
9-30-2016

| | |
|---|---------------------|
| LOCALLY ADMINISTERED PROJECT | |
| CITY OF SUFFOLK | |
| SHERRY B. EARLEY, P.E. | |
| RECOMMENDED FOR APPROVAL FOR RIGHT OF WAY ACQUISITION | |
| DATE | ENGINEERING MANAGER |
| SHERRY B. EARLEY, P.E. | |
| RECOMMENDED FOR APPROVAL FOR CONSTRUCTION | |
| DATE | ENGINEERING MANAGER |

| | |
|--|--|
| FUNCTIONAL CLASSIFICATION | |
| RTE 10/GODWIN BOULEVARD PRINCIPAL ARTERIAL 35 MPH POSTED SPEED 2013 ADT 9,471 | |
| RTE 125/KINGS HIGHWAY MINOR ARTERIAL 35 MPH POSTED SPEED 2013 ADT 3,156 | |

CITY OF SUFFOLK - 2010 CENSUS POPULATION 84,585

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| GI001 | TITLE SHEET |
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| C-001 | GENERAL NOTES, LEGEND AND ABBREVIATIONS |
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| CU-002 | UTILITY GENERAL NOTES |
| CU-101 | UTILITY PLAN |
| CU-501 | UTILITY DETAILS |

PROJECT INFORMATION

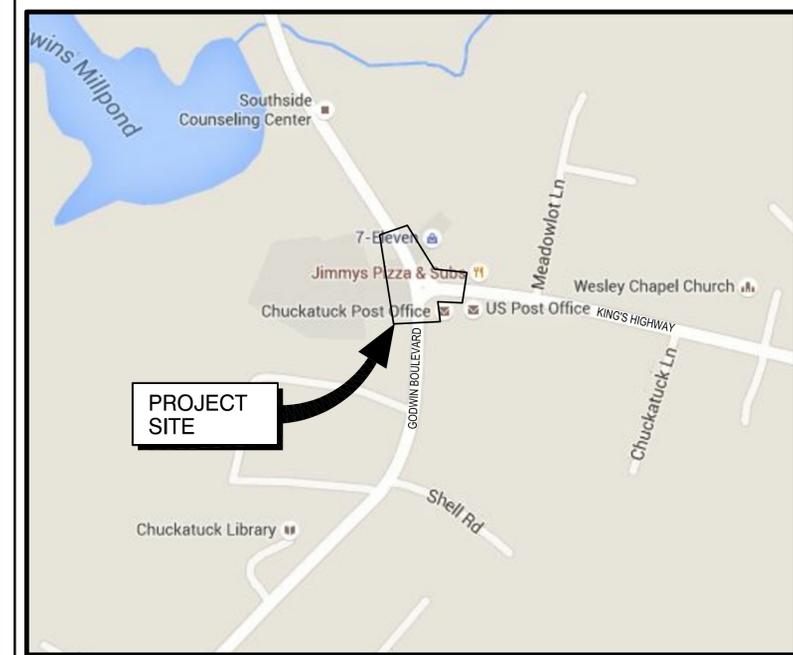
| | |
|---------------------------|---|
| CURRENT PROPERTY ZONING: | GENERAL COMMERCIAL AND VILLAGE CENTER DISTRICT |
| SITE ADDRESS: | INTERSECTION OF GODWIN BOULEVARD AND KINGS HIGHWAY SUFFOLK, VA 23432 |
| AREA OF LAND DISTURBANCE: | 21,344 SF (0.49 AC) |
| IMPERVIOUS AREA: | |
| PREDEVELOPMENT: | 11,596 SF (0.27 AC) (54.3%) |
| POST DEVELOPMENT: | 14,103 SF (0.32 AC) (66.1%) |

LOCATION MAP



NOT TO SCALE

SITE PLAN



NOT TO SCALE

GODWIN BOULEVARD AND KINGS HIGHWAY
INTERSECTION IMPROVEMENTS
CITY OF SUFFOLK, VA

| | | | |
|-----------|--------------------|-------------|----|
| CN NO: | 6106 | | |
| DATE: | SEPTEMBER 30, 2016 | | |
| DESIGN: | WMP | | |
| DRAWN: | WSW | | |
| REVIEW: | DAB | | |
| REVISIONS | | | |
| No. | Date | Description | By |

TITLE SHEET

GI001

SHEET 1 OF 19

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GENERAL NOTES

1. THE CONTRACTOR SHALL NOTIFY THE CITY OF SUFFOLK PUBLIC WORKS DEPARTMENT (757-514-7683) A MINIMUM OF 36 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION AND/OR CONSTRUCTION.
2. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM WITH THE VDOT ROAD AND BRIDGE STANDARDS (2016) AND SPECIFICATIONS (2016), VDOT SPECIFICATIONS (SPCN'S SP'S& SS'S), VIRGINIA STORMWATER MANAGEMENT REGULATIONS, CITY OF SUFFOLK UNIFIED DEVELOPMENT ORDINANCE, CITY OF SUFFOLK PUBLIC FACILITIES MANUAL, HAMPTON ROADS REGIONAL CONSTRUCTION STANDARDS, MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (2009), VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS, VIRGINIA WORK AREA PROTECTION MANUAL (2011, REV. 1) AND ANY OTHER APPLICABLE CITY OR STATE ORDINANCES, CODES, LAWS, AND FEDERAL REGULATIONS.
3. ALL SITE IMPROVEMENTS ARE SUBJECT TO CITY INSPECTION UNDER CITY CODES, VDOT AND THE CITY OF SUFFOLK DEPARTMENT OF PUBLIC UTILITIES SPECIFICATIONS, AS APPLICABLE.
4. UNDERGROUND EXPLORATIONS AND A TITLE SEARCH WERE NOT PERFORMED TO DETERMINE THE ABSENCE OR PRESENCE OF SOIL CONTAMINATION.
5. UPON CONSTRUCTION COMPLETION, ONE (1) COPY OF THE FINAL AS-BUILT DRAWINGS SHALL BE PROVIDED TO PUBLIC WORKS ON CD IN AUTOCAD 2011 OR LATER VERSION. DRAWINGS SHALL INDICATE LOCATION OF STRUCTURE IN CORRECT COORDINATE SPACE HAVING BEARINGS AND DISTANCES AND SHOULD BE TIED TO THE NAD 83 OF THE VIRGINIA STATE PLANE COORDINATE SYSTEM SOUTH.
6. THE CONTRACTOR SHALL WORK WITHIN THE RIGHT-OF-WAY AND EASEMENTS AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT, SPOILS, MATERIAL STOCKPILES AND OTHER ITEMS ASSOCIATED WITH THE WORK WITHIN THE EXISTING RIGHT-OF-WAY OR AT AN OFFSITE LOCATION APPROVED BY THE CITY AND ENGINEER.
7. PRIOR TO CONSTRUCTION OR EXCAVATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES (PUBLIC OR PRIVATE) THAT MAY EXIST WITHIN THE AREA OF CONSTRUCTION THAT ARE NOT SHOWN ON THESE PLANS. PRIOR TO CONSTRUCTION OR EXCAVATION, THE CONTRACTOR SHALL CALL "MISS UTILITY" OF VIRGINIA AT 1-800-552-7001. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY EXISTING UTILITY DAMAGED DURING CONSTRUCTION AT HIS EXPENSE.
8. THE CONTRACTOR IS TO MAINTAIN ACCESS TO ALL ADJACENT PRIVATE AND COMMERCIAL PROPERTIES AT ALL TIMES DURING CONSTRUCTION.
9. A TRAFFIC CONTROL PLAN MUST BE SUBMITTED AND APPROVED BY TRAFFIC ENGINEERING PRIOR TO APPLICATION FOR LAND USE PERMIT.
10. A LAND USE PERMIT MUST BE OBTAINED FROM THE CITY OF SUFFOLK, DEPARTMENT OF PUBLIC WORKS BEFORE ANY CONSTRUCTION IS STARTED WITHIN THE EXISTING CITY RIGHT OF WAY.
11. THE CITY TRAFFIC ENGINEER IS TO RECEIVE WRITTEN NOTIFICATION 48 HOURS PRIOR TO THE START OF ANY TRAFFIC ENGINEERING RELATED WORK. A PRE-CONSTRUCTION MEETING WILL BE REQUIRED PRIOR TO ANY TRAFFIC ENGINEERING RELATED WORK.
12. ANY ERRORS, CONFLICTS, OR DISCREPANCIES FOUND ON THE APPROVED PLANS SHALL BE REPORTED TO THE ENGINEER AND THE CITY FOR RESOLUTION BEFORE PROCEEDING FURTHER WITH WORK.

GRADING, DRAINAGE AND INCIDENTAL

1. ALL TRANSITIONS IN GRADING SHALL BE SMOOTH ROUND CURVES.
2. THE GEOTECHNICAL ENGINEER SHALL EVALUATE SUBGRADE SOILS TO DETERMINE IF UNSUITABLE MATERIAL EXISTS AND PROPOSE A MEANS TO STABILIZE THE MATERIAL.
3. PRIVATE PROPERTY RESIDENTIAL MAILBOXES OR DRIVEWAYS DAMAGED OR DESTROYED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.

SURVEY NOTES

1. THE MERIDIAN SOURCE OF THIS TOPOGRAPHIC SURVEY IS BASED ON THE CITY OF SUFFOLK CONTROL NETWORK, ELEVATIONS REFER TO NAVD 88 AND ARE BASED ON CITY OF SUFFOLK CONTROL STATION #111. VIRGINIA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM 1983 (1994 VA. HARN) (U.S. SURVEY FOOT).
2. ELEVATIONS REFER TO NORTH AMERICAN VERTICAL DATUM (NAVD 88), AT CITY DISK #107.
3. THIS SURVEY WAS PREPARED TO SHOW EXISTING FEATURES AS OF JUNE 25, 2015 AND DOES NOT CERTIFY AS TO THE ACCURACY OF PROPOSED OR FUTURE ITEMS WHICH ARE ADDED TO THIS DRAWING.
4. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT OR LEASE EXHIBIT AND MAY NOT SHOW ALL EASEMENTS OR RESTRICTIONS THAT MAY EFFECT THE PROPERTY.
5. THIS SURVEY DOES NOT CONSTITUTE A BOUNDARY SURVEY NOR A SUBDIVISION OF LAND.
6. THIS SURVEY DOES NOT INTEND TO DEPICT ANY WETLANDS, HAZARDOUS WASTE AND ENVIRONMENTAL FEATURES THAT MAY EFFECT SAID PROPERTY SHOWN HEREON EXCEPT AS SHOWN.
7. THE UNDERGROUND UTILITIES SHOWN, IF ANY, HAVE BEEN DESIGNATED BY "ACCUMARK." AND THE PAINT DESIGNATION LINES HAVE BEEN LOCATED IN THE FIELD. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. THE SURVEYOR FURTHER NOTIFIES ALL PARTIES THAT VIRGINIA LAW REQUIRES "MISS-UTILITY" TO BE CONTACTED PRIOR TO ANY EXCAVATION.
8. THIS TOPOGRAPHIC SURVEY WAS COMPLETED UNDER THE DIRECT AND RESPONSIBLE CHARGE OF, IVAN R. LINEBERRY, L.S. FROM AN ACTUAL GROUND SURVEY MADE UNDER MY SUPERVISION; THAT THE ORIGINAL DATA WAS OBTAINED ON 06/19/2015; AND THAT THIS PLAT, MAP, OR DIGITAL GEOSPATIAL DATA INCLUDING METADATA MEETS MINIMUM ACCURACY STANDARDS UNLESS OTHERWISE NOTED.
9. THIS PROPERTY IS ZONED GENERAL COMMERCIAL AND VILLAGE CENTER DISTRICT. THIS PROPERTY APPEARS TO BE IN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBER 5101560105D MAP REVISED: NOVEMBER 16, 2011.
10. THIS TOPOGRAPHIC SURVEY WAS PREPARED BY:

PRECISION MEASUREMENTS, INC.
 SURVEYORS - GPS - GIS - MAPPING - 3-D LASER SCANNING
 851 SEAHAWK CIRCLE, SUITE 103
 VIRGINIA BEACH, VA 23452
 (757) 368-0945
 WWW.PRECISIONMEASUREMENTS.COM
 VIRGINIA BEACH - NEWPORT NEWS - RICHMOND, VIRGINIA

LEGEND

| EXISTING | NEW | EXISTING | NEW |
|----------|-----|----------|-----|
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ABBREVIATIONS

| | | | | | |
|----------|--|----------|---------------------------------------|------|--|
| AASHTO | AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS | INV | INVERT | VSMP | VIRGINIA STORMWATER MANAGEMENT PROGRAM |
| ASTM | AMERICAN SOCIETY FOR TESTING AND MATERIALS | L/P | LIGHT POLE | W | WEST |
| BM | BENCH MARK | LF | LINEAR FEET | W/ | WITH |
| CI | CURB INLET | LS | LANDSCAPING | WM | WATER METER |
| CIP | CAST IRON PIPE | PIN(F) | PIN FOUND | WV | WATER VALVE |
| CMP | CORRUGATED METAL PIPE | P/P | POWER POLE | WWF | WELDED WIRE FABRIC AND |
| CONC | CONCRETE | PVC | POLYVINYL CHLORIDE | # | NUMBER |
| CTV | CABLE TELEVISION | RCP | REINFORCED CONC PIPE | @ | AT |
| DI | DROP INLET | SDMH | STORM DRAIN MANHOLE | | |
| EOE | OVERHEAD ELECTRIC | SAN | SANITARY | | |
| EOI | END OF INFORMATION | SMH | SANITARY MANHOLE | | |
| ES | EXISTING SANITARY SEWER | SO | SQUARE | | |
| ESD | EXISTING STORM DRAIN | SQ FT | SQUARE FEET | | |
| EUC | EXISTING UNDERGROUND TELEPHONE | STA | STATION | | |
| EUE | EXISTING UNDERGROUND ELECTRICAL | STD | STANDARD | | |
| EUC/TV | EXISTING UNDERGROUND CABLE TV | TBM | TEMPORARY BENCHMARK | | |
| EX/EXIST | EXISTING | TC | TOP OF CURB | | |
| EW | EXISTING WATER | TH | TELEPHONE HANDHOLE | | |
| FH | FIRE HYDRANT | TMH | TELEPHONE MANHOLE | | |
| FHWA | FEDERAL HIGHWAY ADMINISTRATION | TP | TREE PROTECTION | | |
| FL | FLOW LINE | TELE PED | TELEPHONE PEDESTAL | | |
| HDPE | HIGH DENSITY POLYETHYLENE | TRHH | TRAFFIC HANDHOLE | | |
| HDPP | HIGH DENSITY PLASTIC PIPE | TYP | TYPICAL | | |
| | | VAR | VARIABLE | | |
| | | VDOT | VIRGINIA DEPARTMENT OF TRANSPORTATION | | |

RIGHT OF WAY DATA

| PARCEL NO. | LANDOWNER | SHEET NO. | AREA | | | | | | | |
|----------------------|---|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|----------|
| | | | TOTAL | FEE TAKING | PRESCRIPTIVE R/W | FEE REMAINDER | EASEMENTS | | | |
| | | | | | | | PERMANENT | UTILITY | TEMPORARY | PROFFERS |
| ACRES OR SQUARE FEET | ACRES OR SQUARE FEET | ACRES OR SQUARE FEET | ACRES OR SQUARE FEET | ACRES OR SQUARE FEET | ACRES OR SQUARE FEET | ACRES OR SQUARE FEET | ACRES OR SQUARE FEET | YES/NO | | |
| 001 | CHARLES C. JOHNSON, JR. | C-101 | 1.68 Ac | | | 1.68 Ac | | 0.031 Ac / 1330.01 SF | 0.013 Ac / 559.84 SF | NO |
| 002 | RONALD H. KELLY | C-101 | 4.09 Ac | 0.013 Ac / 570.08 SF | | 4.077 Ac | | 0.005 Ac / 193.95 SF | 0.021 Ac / 924.06 SF | NO |
| 003 | CHARLES R. POND, III JUANITA K. POND | C-101 | 1.60 Ac | 0.016 Ac / 673.21 SF | | 1.584 Ac | 0.043 Ac / 1896.21 SF | 0.040 Ac / 1746.54 SF | 0.054 Ac / 2336.85 SF | NO |
| 004 | CHARLES C. JOHNSON, JR. | C-101 | 0.31 Ac | | | 0.31 Ac | | 0.051 Ac / 2214.78 SF | 0.044 Ac / 1898.95 SF | NO |
| 005 | KENT L. GWALTNEY CAROLYN S. GWALTNEY | C-101 | 1.09 Ac | | | 1.09 Ac | | 0.006 Ac / 260.65 SF | 0.013 Ac / 555.36 SF | NO |
| 006 | CHARLES C. JOHNSON, III | C-101 | 0.60 Ac | | | 0.60 Ac | 0.016 Ac / 688.20 SF | 0.006 Ac / 260.11 SF | | NO |
| 007 | HARVEY P. DOYLE | C-101 | 0.21 Ac | 0.005 Ac / 226.44 SF | | 0.205 Ac | | | 0.013 Ac / 572.75 SF | NO |
| 008 | ROBERTA G. BUETOW | C-101 | 0.22 Ac | | | | | | 0.003 Ac / 148.86 SF | NO |
| 009 | JOHNIE W. NETHERLAND JOYCE B. NETHERLAND | C-101 | 0.30 Ac | | | | | | | NO |

4525 Main Street, Suite 1400
 Virginia Beach, VA 23462
 757.455.5800

NOT FOR CONSTRUCTION
90% SUBMITTAL
9-30-2016

GODWIN BOULEVARD AND KINGS HIGHWAY INTERSECTION IMPROVEMENTS
 CITY OF SUFFOLK, VA

CN NO: 6106
 DATE: SEPTEMBER 30, 2016
 DESIGN: WMP
 DRAWN: WSW
 REVIEW: DAB

REVISIONS
 No. Date Description By

GENERAL NOTES, LEGEND AND ABBREVIATIONS

C-001

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9-30-2016

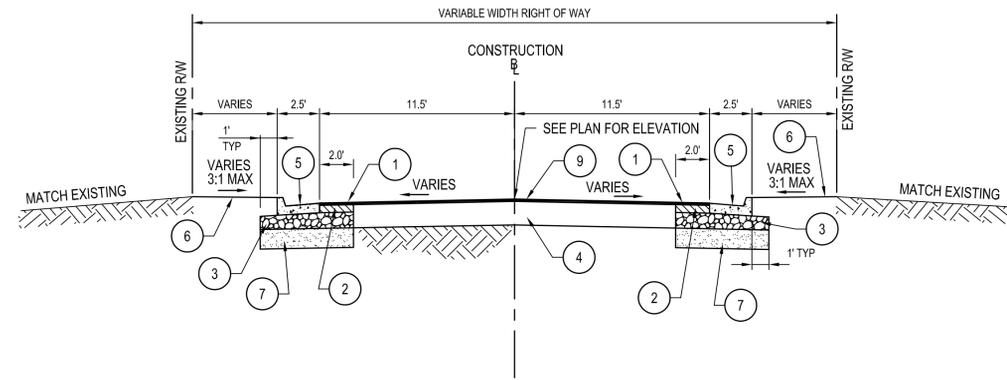
GODWIN BOULEVARD AND KINGS HIGHWAY
INTERSECTION IMPROVEMENTS
CITY OF SUFFOLK, VA

CN NO: 6106
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TYPICAL
SECTIONS

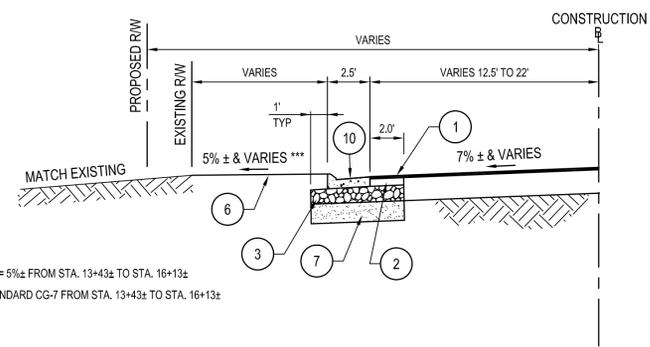
C-002

SHEET 3 OF 19



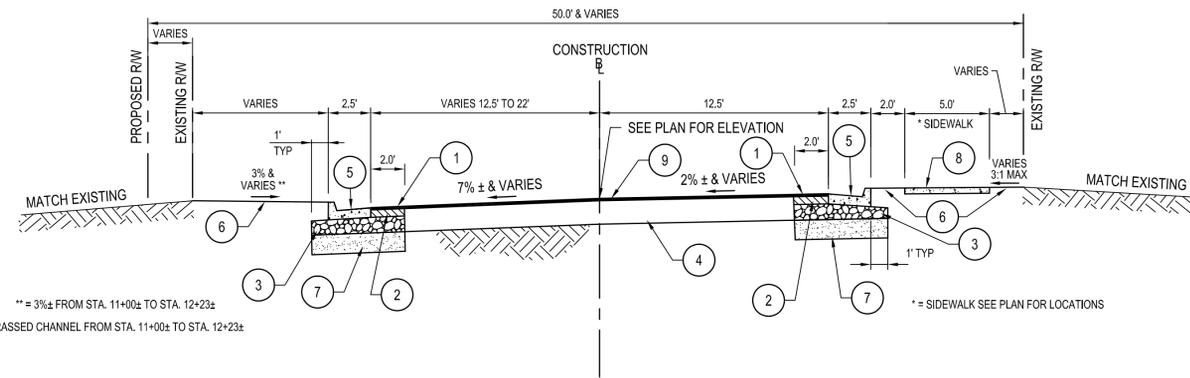
TYPICAL SECTION - KINGS HIGHWAY

NO SCALE



TYPICAL SECTION - GODWIN BOULEVARD

NO SCALE



LEGEND

- 1 3" ASPHALT CONCRETE SURFACE COURSE VDOT SM-9.5A
- 2 3" ASPHALT CONCRETE BASE COURSE VDOT BM-25.0A
- 3 11" AGGREGATE MATERIAL VDOT TYPE 1, #21B
- 4 EXISTING ROADWAY BASE
- 5 CURB & GUTTER, VDOT STANDARD CG-6
- 6 4" TOPSOIL AND SEED
- 7 STRUCTURAL FILL
- 8 SIDEWALK
- 9 1.5" MINIMUM MILL WITH VARIABLE DEPTH OVERLAY
- 10 CURB & GUTTER, VDOT STANDARD CG-7

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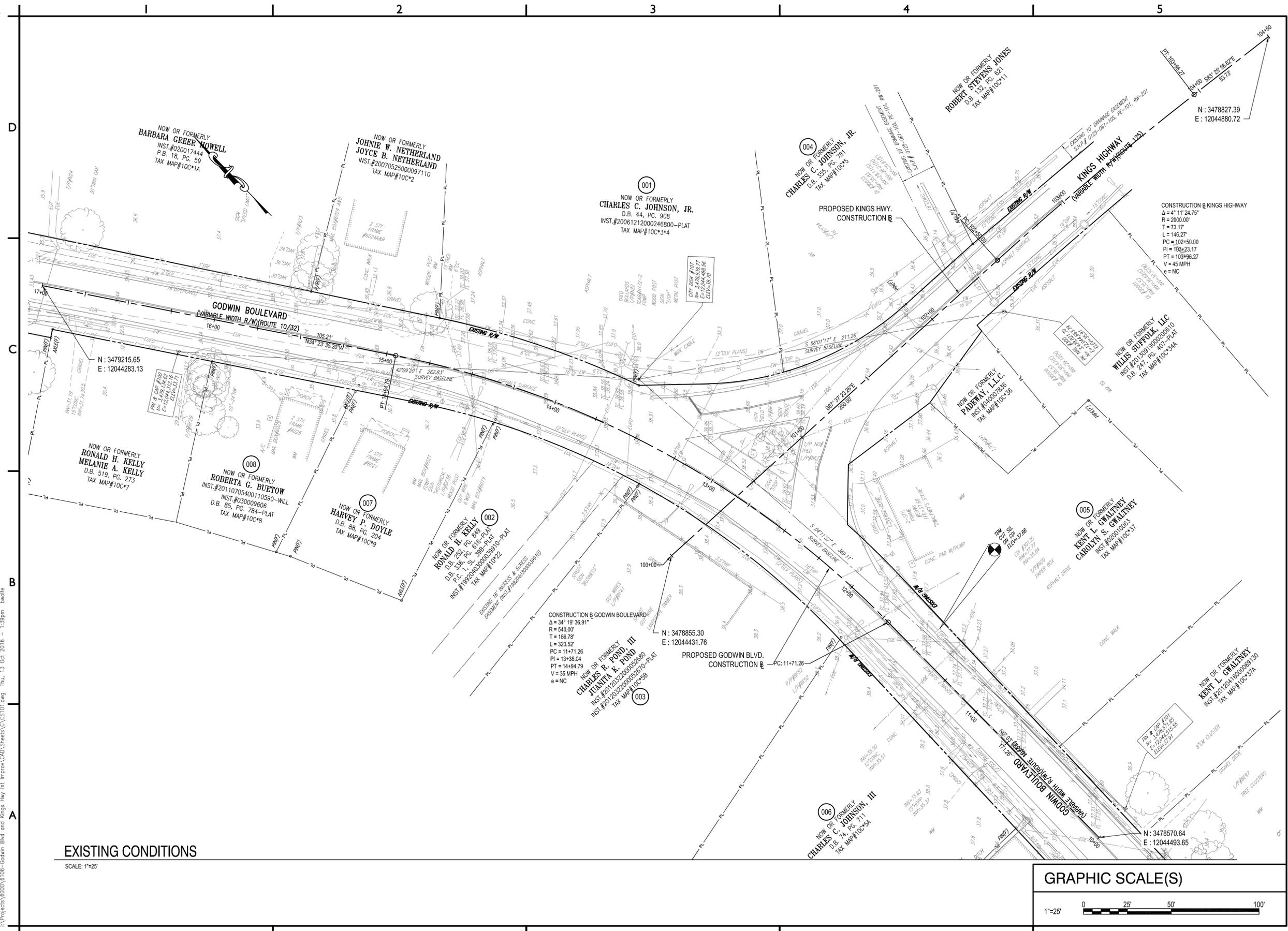
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**GODWIN BOULEVARD AND KINGS HIGHWAY
INTERSECTION IMPROVEMENTS**
CITY OF SUFFOLK, VA

CN NO: 6106
DATE: SEPTEMBER 30, 2016
DESIGN: WMP
DRAWN: WSW
REVIEW: DAB
REVISIONS
No. Date Description By

EXISTING
CONDITIONS

CS-101



EXISTING CONDITIONS

SCALE: 1"=25'

GRAPHIC SCALE(S)

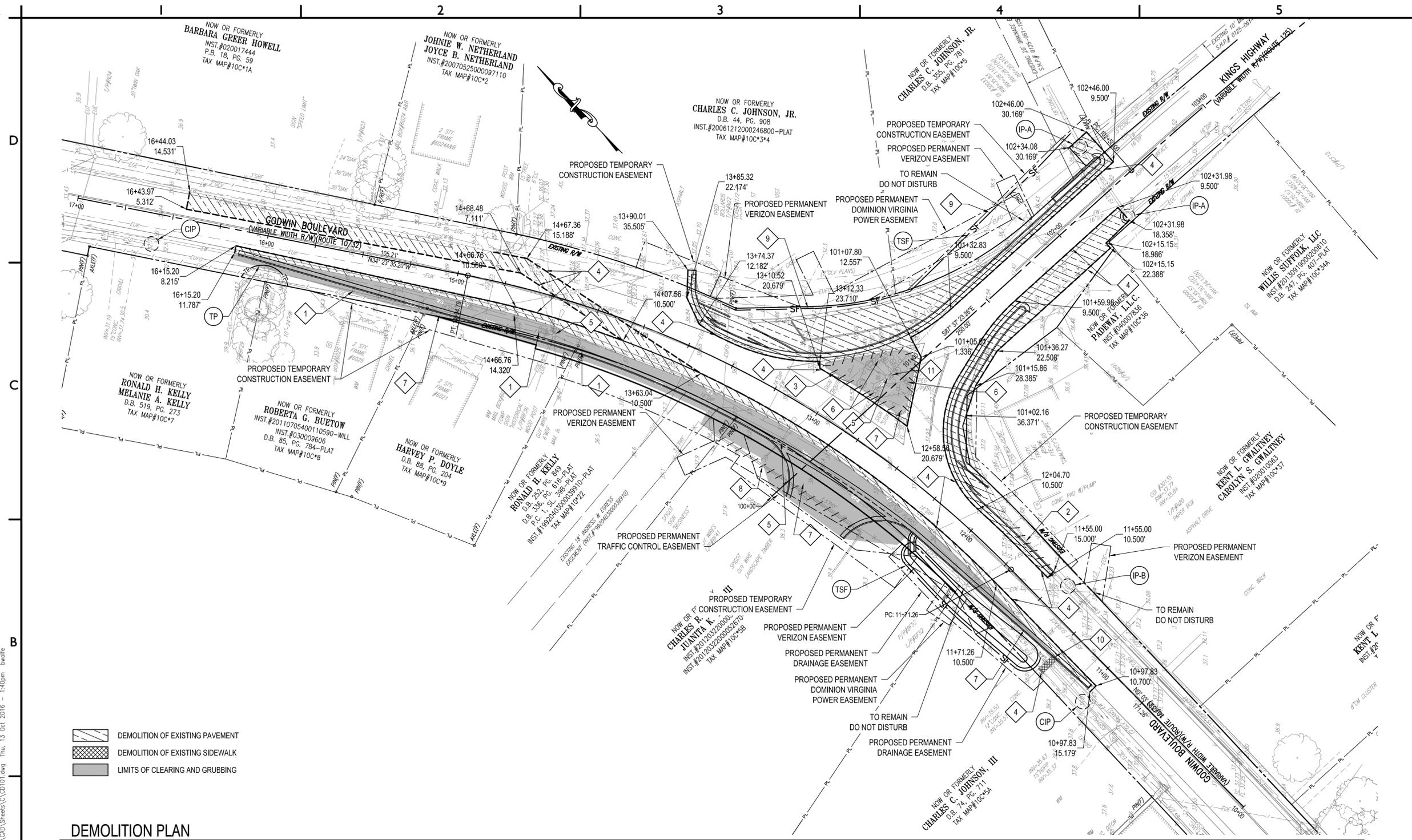


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SUBMITTAL
9-30-2016

GODWIN BOULEVARD AND KINGS HIGHWAY
INTERSECTION IMPROVEMENTS
CITY OF SUFFOLK, VA

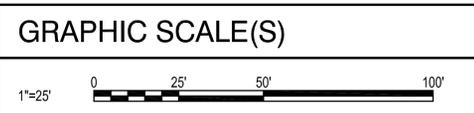
CN NO: 6106
DATE: SEPTEMBER 30, 2016
DESIGN: WMP
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- DEMOLITION OF EXISTING PAVEMENT
- DEMOLITION OF EXISTING SIDEWALK
- LIMITS OF CLEARING AND GRUBBING

DEMOLITION PLAN
SCALE: 1"=25'

- # DEMOLITION NOTES**
1. RELOCATE MAILBOX
 2. REMOVE CURB AND GUTTER
 3. REMOVE CURB
 4. SAWCUT PAVEMENT
 5. UTILITY POLE TO BE RELOCATED BY OTHERS
 6. LIGHT POLE TO BE REMOVED BY OTHERS
 7. CLEARING AND GRUBBING
 8. REMOVE EXISTING FENCE
 9. TEMPORARY SILT FENCE
 10. REMOVE EXISTING SIDEWALK
 11. TELEPHONE PEDESTAL TO BE RELOCATED BY OTHERS



DEMOLITION
PLAN

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EROSION & SEDIMENT CONTROL (ESC) GENERAL NOTES

- UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (3RD EDITION, 1992) AND THE CITY OF SUFFOLK EROSION AND SEDIMENT CONTROL ORDINANCE.
- THE CONTRACTOR SHALL APPLY PERMANENT OR TEMPORARY SOIL STABILIZATION TO ALL DENUDE OR DISTURBED AREAS WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. SOIL STABILIZATION MUST ALSO BE APPLIED TO DENUDE OR DISTURBED AREAS WHICH MAY NOT BE AT FINAL GRADE BUT WHICH WILL REMAIN UNDISTURBED FOR LONGER THAN 14 DAYS. SOIL STABILIZATION MEASURES INCLUDE VEGETATIVE ESTABLISHMENT, MULCHING, AND THE EARLY APPLICATION OF GRAVEL BASE MATERIAL ON AREAS TO BE PAVED.
- ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN LAND DISTURBANCE.
- THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES AND CLEANUP OF SEDIMENTATION ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MADE IMMEDIATELY.
- THE CONTRACTOR SHALL LIMIT SITE ACCESS BY CONSTRUCTION VEHICLES TO ENTRANCES PROTECTED BY A STONE CONSTRUCTION ENTRANCE (VESCH, STD. AND SPEC 3.02) OR AN APPROVED COMPARABLE CONTROL MEASURE. SEDIMENT SHALL BE REMOVED FROM PAVED AREAS ON A DAILY BASIS.
- STOCK PILES OF SOIL AND OTHER ERODIBLE MATERIALS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION FOR STOCK PILES ON SITE AS WELL AS FOR MATERIALS TRANSPORTED FROM THE PROJECT SITE.
- THE CONTRACTOR SHALL MONITOR AND TAKE PRECAUTIONS TO CONTROL DUST INCLUDING (BUT NOT LIMITED TO) USE OF WATER, MULCH, OR CHEMICAL DUST ADHESIVES AND CONTROL OF CONSTRUCTION SITE TRAFFIC.
- EFFLUENT FROM DE-WATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT ADJACENT PROPERTIES, WETLANDS, WATERWAYS, OR THE STORM DRAINAGE SYSTEM.
- THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ANY ADDITIONAL CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED NECESSARY BY THE PLAN APPROVING AUTHORITY.
- TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES ARE NOT TO BE REMOVED UNTIL ALL DISTURBED AREAS ARE STABILIZED. AFTER STABILIZATION IS COMPLETE, ALL MEASURES SHALL BE REMOVED WITHIN 30 DAYS. TRAPPED SEDIMENT SHALL BE SPREAD AND SEEDED.
- ROCK FOR CHECK DAMS, INLET PROTECTION, EROSION CONTROL STONE AND RIPRAP SHALL BE IN ACCORDANCE WITH SECTION 203 AND SECTION 414 OF THE APPLICABLE VDOT ROAD AND BRIDGE SPECIFICATIONS.

TABLE 3.32-E
(Revised June 2003)
PERMANENT SEEDING SPECIFICATIONS FOR COASTAL PLAIN AREA

| SEED | | |
|--|--------------------------------------|-------------------|
| LAND USE | SPECIES | APPLICATION RATES |
| Minimum Care Lawn (Commercial or Residential) | Tall Fescue 1 | 175-200 lbs. |
| | Bermudagrass 1 | 75 lbs. |
| General Slope (3:1 or less) | Tall Fescue 1 | 128 lbs. |
| | Red Top Grass or Creeping Red Fescue | 2 lbs. |
| | Seasonal Nurse Crop 2 | 20 lbs. |
| | | Total: 150 lbs. |
| LOW-Maintenance Slope (Steeper Than 3:1) | Tall Fescue 1 | 93-108 lbs. |
| | Bermudagrass | 0-15 lbs. |
| | Red Top Grass or Creeping Red Fescue | 2 lbs. |
| | Seasonal Nurse Crop 2 | 20 lbs. |
| | Sericea Lespedeza 3 | 20 lbs. |
| | Total: 150 lbs. | |

1- When selecting varieties of turfgrass, use the Virginia Crop Improvement Association (VCIA) recommended turfgrass variety list. Quality seed will bear a label indicating that they are approved by VCIA. A current turfgrass variety list is available at the local County Extension office or through VCIA at 804-746-4884 or at <http://sudan.cses.vt.edu/html/turf/turfpublications/publications2.html>

2- Use seasonal nurse crop in accordance with seeding dates as listed below:

| | |
|------------------------------------|----------------|
| February, March - April | Annual Rye |
| May 1st - August | Foxtail Millet |
| September, October - November 15th | Annual Rye |
| November 16th - January | Winter Rye |

3- May through October, use hulled seed. All other seeding periods, use unhulled seed. If weeping lovegrass is used, including in any slope or low maintenance mixture during warmer seeding periods, increase to 30-40 lbs/acre.

FERTILIZER & LIME

- Apply 10-20-10 fertilizer at a rate of 500 lbs./acre (or 12 lbs./1,000 sq. ft.)
- Apply Pulverized Agricultural Limestone at a rate of 2 tons/acre (or 90 lbs./1,000 sq. ft.)

NOTE:
-A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of the site.
-Incorporate the lime and fertilizer into the top 4-6 inches of the soil by disking or by other means.
-When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin #4, 2003 Nutrient Management for Development Sites at <http://www.dcr.state.va.us/sw/e&s.html#pubs>

TABLE 3.31-B
(Revised June 2003)
TEMPORARY SEEDING SPECIFICATIONS
QUICK REFERENCE FOR ALL REGIONS

| SEED | | |
|-------------------|---|-------------------|
| APPLICATION DATES | SPECIES | APPLICATION RATES |
| Sept. 1-Feb. 15 | 50:50 Mix of Annual Ryegrass (lolium multi-florum) & Cereal (Winter) Rye (Secale cereale) | 50-100 (lbs/acre) |
| Feb. 16-Apr. 30 | Annual Ryegrass (lolium multi-florum) | 60-100 (lbs/acre) |
| May. 1-Aug. 31 | German Millet | 50 (lbs/acre) |

FERTILIZER & LIME

- Apply 10-10-10 FERTILIZER at a rate 450 lbs./acre (or 10 lbs./1,000sq ft)
- Apply PULVERIZED AGRICULTURAL LIMESTONE at a rate of 2 tons/acre (or 90 lbs./1,000 sq ft)

NOTE:
1 - A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
2 - Incorporate the lime and fertilizer into the top 4-6 inches of the soil by disking or by other means.

3 - When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin #4, 2003 Nutrient Management for Development Sites at <http://www.dcr.state.va.us/sw/e&s.html#pubs>

LANDSCAPE, TOPSOIL (4 INCH DEPTH), FERTILIZER, AND SEED

NO SCALE

E&S CONTROL NARRATIVE

PROJECT DESCRIPTION

THE PROPOSED PROJECT INVOLVES THE CONVERSION OF THE EXISTING UN-SIGNALIZED "Y-INTERSECTION" OF RTE. 10 GODWIN BOULEVARD AND RTE. 125 KINGS HIGHWAY TO A SIGNALIZED "T-INTERSECTION". THE ORIGINAL SCOPE OF THE PROJECT INCLUDED NO WIDENING OF THE EXISTING ROADWAY WITHIN THE PROJECT AREA. HOWEVER, FOLLOWING THE ORIGINAL 90% SUBMITTAL IN EARLY 2016, THE SCOPE WAS CHANGED TO INCORPORATE A NEW SOUTHBOUND LEFT HAND TURN LANE. ADDITIONALLY A SIDEWALK, WHICH PRESENTLY ENDS APPROX. 50' SOUTH OF THE INTERSECTION, WILL BE EXTENDED AND PEDESTRIAN ACCOMMODATIONS WILL BE INSTALLED ALLOW FOR SAFER PEDESTRIAN PASSAGE ACROSS KINGS HWY AND ALSO ACROSS GODWIN BLVD.

EXISTING SITE CONDITIONS

GODWIN BOULEVARD AT THIS LOCATION IS A PRINCIPAL ARTERIAL ROADWAY WITH A POSTED SPEED LIMIT OF 35 MPH. KINGS HIGHWAY IS A MINOR ARTERIAL ROADWAY WITH A POSTED SPEED LIMIT OF 35 MPH. BOTH GODWIN BLVD. AND KINGS HWY ARE EXISTING TWO LANE UNDIVIDED ROADWAYS WITH MINIMAL PAVED SHOULDERS (1') AND NO CURB AND GUTTER.

ADJACENT PROPERTY

GODWIN BOULEVARD AND KINGS HIGHWAY IS LOCATED IN SUFFOLK, VA. STORES SURROUNDING THE INTERSECTION INCLUDE A 7-11 AND JIMMY'S PIZZA AND SUBS TO THE NORTH, KELLY'S NURSERY TO THE WEST, AND THE CHUCKATUCK POST OFFICE TO THE EAST.

OFF-SITE AREAS

NO OFF-SITE LAND DISTURBANCE IS ANTICIPATED FOR THIS PROJECT.

SOILS

BASED ON A USDA SOIL WEB SURVEY, SOILS AT THE PROJECT SITE CONSIST OF KENANSVILLE LOAMY SAND, WET SUBSTRATUM, 0 TO 4 PERCENT SLOPES. THE SOIL WEB SURVEY CAN BE FOUND IN APPENDIX D.

CRITICAL EROSION AREAS

THE SITE IS RELATIVELY FLAT WITH NO CRITICAL EROSION AREAS.

EROSION AND SEDIMENT CONTROL MEASURES

UNLESS OTHERWISE INDICATED, VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. THE MINIMUM STANDARDS OF THE VESCH SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY A VARIANCE.

STRUCTURAL PRACTICES

1. SILT FENCE BARRIER - 3.05

SILT FENCE SEDIMENT BARRIERS WILL BE PLACED DOWN SLOPE OF EXISTING AREAS WITH MINIMAL GRADES TO FILTER SEDIMENT-LADEN RUNOFF FROM SHEET FLOW.

2. STORM DRAIN INLET PROTECTION - 3.07

STORM SEWER INLETS SHALL BE PROTECTED DURING CONSTRUCTION TO FILTER SEDIMENT-LADEN CONSTRUCTION RUNOFF BEFORE ENTERING THE STORM SEWER INLETS.

3. TREE PRESERVATION AND PROTECTION - 3.38

PROTECTING EXISTING TREES FROM MECHANICAL AND OTHER INJURY DURING LAND-DISTURBING AND CONSTRUCTION ACTIVITY TO ENSURE THE SURVIVAL OF DESIRABLE TREES WHERE THEY WILL BE EFFECTIVE FOR EROSION AND SEDIMENT CONTROL AND PROVIDE OTHER ENVIRONMENTAL AND AESTHETIC BENEFITS.

VEGETATIVE PRACTICES

1. **TOPSOILING - 3.30** TOPSOIL SHALL BE STRIPPED FROM AREAS TO BE GRADED AND STOCKPILED FOR LATER USE. THE STOCKPILE SHALL BE STABILIZED WITH TEMPORARY SEEDING.

2. **TEMPORARY SEEDING - 3.31** BARE AREAS WHICH WILL BE LEFT DORMANT FOR EXTENDED PERIODS OF TIME SHALL BE SEEDED WITH FAST GERMINATING TEMPORARY VEGETATION IMMEDIATELY FOLLOWING GRADING. SELECTION OF THE SEED MIXTURE WILL DEPEND ON THE TIME OF YEAR IT IS APPLIED.

3. **PERMANENT SEEDING - 3.32** PERMANENT SEEDING WILL BE USED TO HELP REDUCE EROSION AND DECREASE SEDIMENT YIELD FROM RAINFALL, WATER AND WIND BY REDUCING THE VELOCITY AND VOLUME OF OVERLAND FLOW. PLANT MATERIALS SHALL CONFORM TO PERMANENT SEEDING SCHEDULE.

MANAGEMENT STRATEGIES

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS A FIRST STEP IN GRADING AND SHALL BE SEEDED AND MULCHED IMMEDIATELY FOLLOWING INSTALLATION.

2. MAJOR GRADING SHOULD BE COMPLETED WITHIN 30 DAYS OF THE BEGINNING OF THE PROJECT. TEMPORARY SEEDING SHALL BE APPLIED IMMEDIATELY AFTER GRADING IS COMPLETED ON THE RESPECTIVE AREAS.

3. AREAS WHICH ARE NOT TO BE DISTURBED SHALL BE CLEARLY MARKED WITH FLAGS, SIGNAGE, ETC.

4. THE CONSTRUCTION SUPERINTENDENT SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL PRACTICES.

5. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED DAILY AND ESPECIALLY AFTER EACH SIGNIFICANT RAINFALL TO LOCATE DAMAGES AND CONDUCT MAINTENANCE OPERATION.

PERMANENT STABILIZATION

AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISH GRADING. PERMANENT SEEDING SHALL BE DONE ACCORDING TO VESCH STD. & SPEC. 3.32, PERMANENT SEEDING.

STORMWATER MANAGEMENT

STORMWATER QUALITY IS ADDRESS ON-SITE USING THE RUNOFF REDUCTION METHOD. CHANNEL PROTECTION HAS BEEN ACHIEVED USING THE 1% RULE. FLOOD PROTECTION FOR INLETS HAS BEEN VERIFIED AND THE DITCHES ALONG GODWIN BLVD WILL BE ANALYZED IN THE NEXT SUBMITTAL.

MAINTENANCE

EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL. THE FOLLOWING ITEMS SHALL BE CHECKED IN PARTICULAR.

1. SEDIMENT SHALL BE REMOVED FROM THE CULVERT INLET PROTECTION AND THE IMPOUNDMENT RESTORED TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH.

2. SILT FENCE SHALL BE CHECKED REGULARLY FOR UNDERMINING OR DETERIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF SEDIMENT DEPOSITION REACHES HALFWAY TO THE TOP OF THE BARRIER.

3. THE SEEDED AREAS SHALL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE FERTILIZED AND RE-SEEDED AS NEEDED.

CLARK NEXSEN

4525 Main Street, Suite 1400
Virginia Beach, VA 23462
757.455.5800

NOT FOR
CONSTRUCTION
90%
SUBMITTAL

9-30-2016

GODWIN BOULEVARD AND KINGS HIGHWAY
INTERSECTION IMPROVEMENTS
CITY OF SUFFOLK, VA

CN NO: 6106
DATE: SEPTEMBER 30, 2016
DESIGN: WMP
DRAWN: WSW
REVIEW: DAB

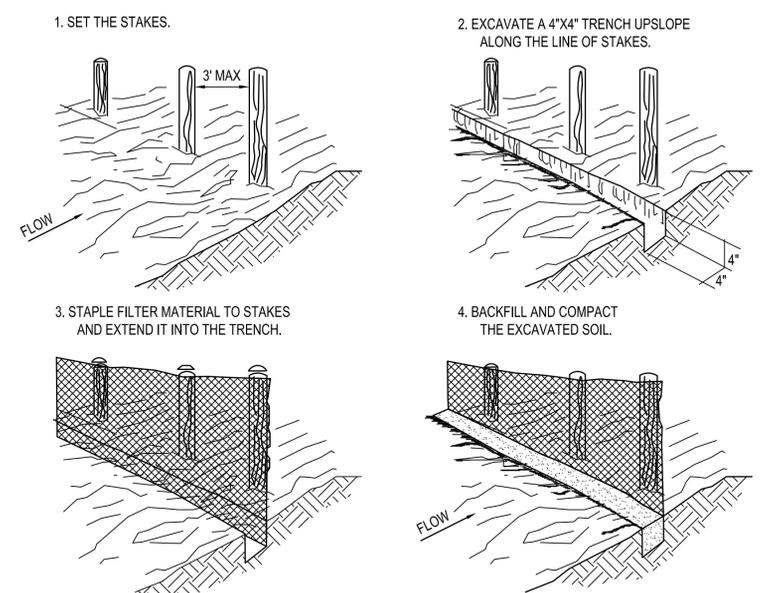
REVISIONS
No. Date Description By

EROSION AND
SEDIMENT
CONTROL NOTES

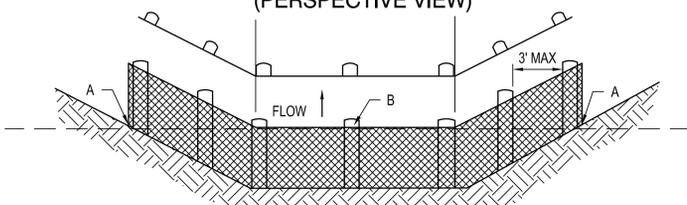
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SHEET 6 OF 19

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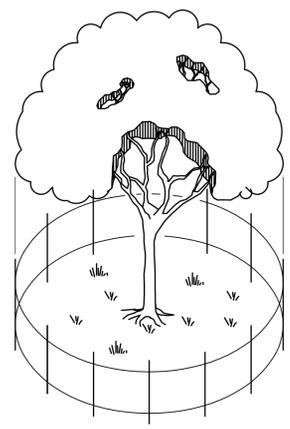


SHEET FLOW INSTALLATION (PERSPECTIVE VIEW)



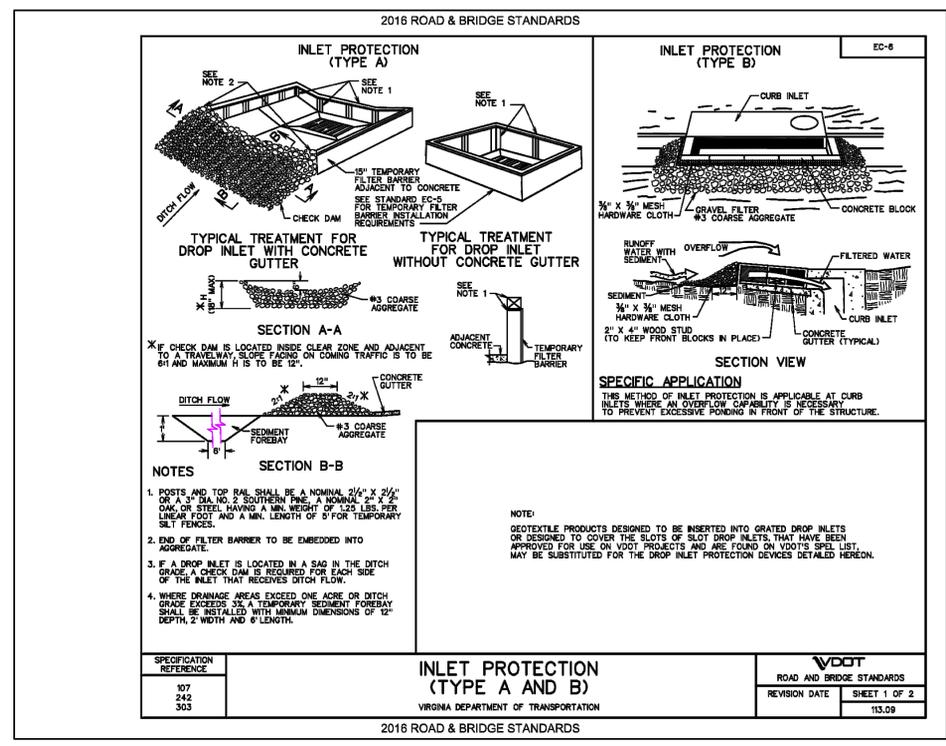
DRAINAGE WAY INSTALLATION (FRONT ELEVATION)

TEMPORARY SILT FENCE
NO SCALE

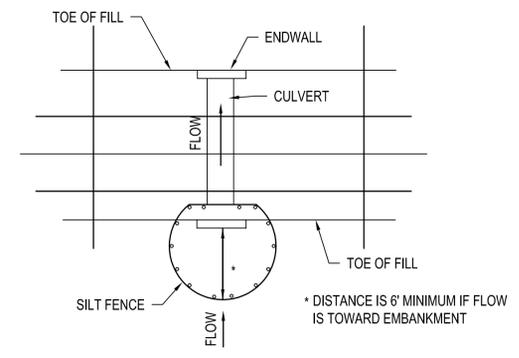


NOTE:
DRIVE STAKES FIRMLY INTO GROUND AT LEAST 12"

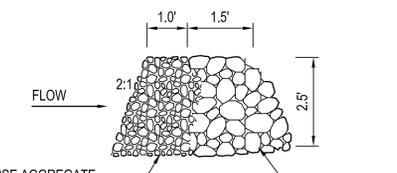
TREE PROTECTION
NO SCALE



CULVERT INLET PROTECTION
NO SCALE



SILT FENCE OPTION



VDOT #3, #357 OR #5 COARSE AGGREGATE OR EQUAL TO REPLACE SILT FENCE IN "HORSESHOE" WHEN HIGH VELOCITY OF FLOW IS EXPECTED

OPTIONAL STONE COMBINATION

CULVERT INLET PROTECTION
NO SCALE

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Virginia Beach, VA 23462
757.455.5800

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90% SUBMITTAL
9-30-2016

GODWIN BOULEVARD AND KINGS HIGHWAY
INTERSECTION IMPROVEMENTS
CITY OF SUFFOLK, VA

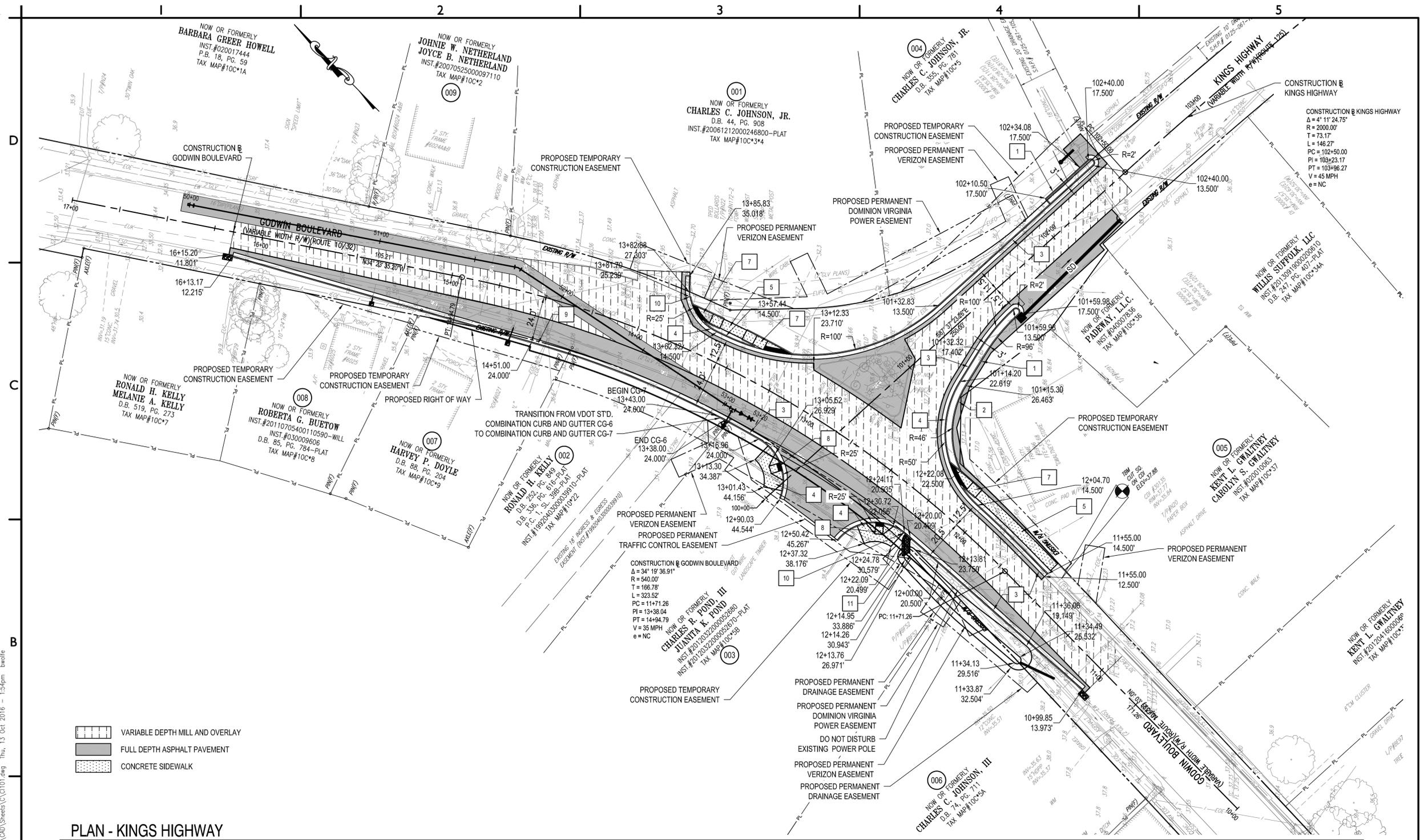
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DATE: SEPTEMBER 30, 2016
DESIGN: WMP
DRAWN: WSW
REVIEW: DAB
REVISIONS
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EROSION AND SEDIMENT CONTROL DETAILS
CD-502

NOT FOR
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90%
SUBMITTAL
9-30-2016

GODWIN BOULEVARD AND KINGS HIGHWAY
INTERSECTION IMPROVEMENTS
CITY OF SUFFOLK, VA

CN NO: 6106
DATE: SEPTEMBER 30, 2016
DESIGN: WMP
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No. Date Description By



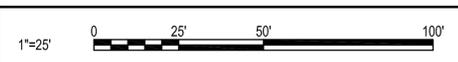
- VARIABLE DEPTH MILL AND OVERLAY
- FULL DEPTH ASPHALT PAVEMENT
- CONCRETE SIDEWALK

PLAN - KINGS HIGHWAY
SCALE: 1"=25'

CONSTRUCTION NOTES

1. STANDARD CURB (VDOT STD. CG-2)
2. RADIAL CURB (VDOT STD. CG-2)
3. STANDARD COMBINATION CURB AND GUTTER (VDOT STD. CG-6)
4. RADIAL COMBINATION CURB AND GUTTER (VDOT STD. CG-6)
5. HYDRAULIC CEMENT CONCRETE SIDEWALK (4"), 5' WIDE
6. VDOT STD. CG-11, ENTRANCE
7. VDOT STD. CG-12, TYPE B
8. VDOT STD. CG-12, TYPE A
9. STANDARD COMBINATION CURB AND GUTTER (VDOT STD. CG-7)
10. CURB CUT
11. CURB CUT GRAVEL FLOW SPREADER

GRAPHIC SCALE(S)



LAYOUT PLAN

C-101

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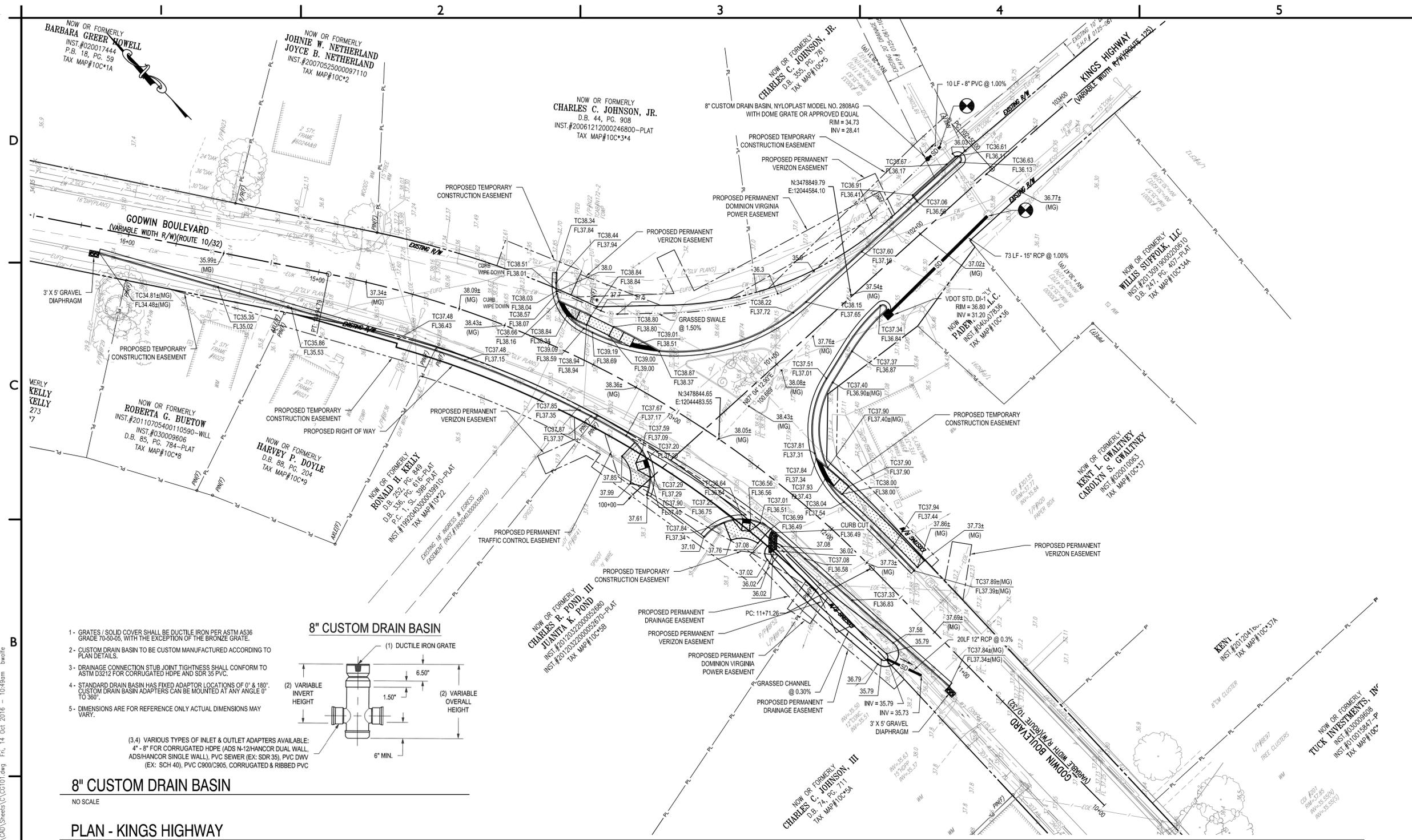
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CONSTRUCTION
**90%
SUBMITTAL**
9-30-2016

**GODWIN BOULEVARD AND KINGS HIGHWAY
INTERSECTION IMPROVEMENTS**
CITY OF SUFFOLK, VA

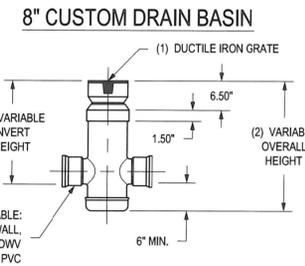
CN NO: 6106
DATE: SEPTEMBER 30, 2016
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REVIEW: DAB
REVISIONS
No. Date Description By

**GRADING &
DRAINAGE PLAN**

CG-101

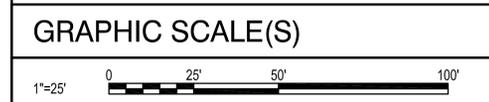
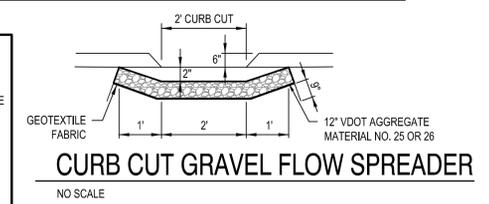
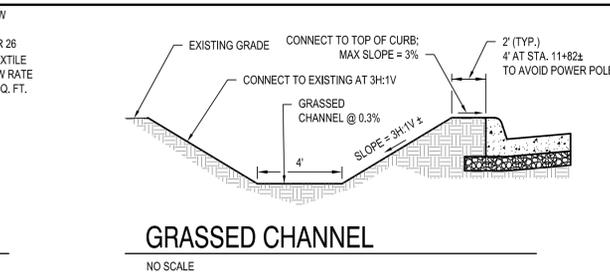
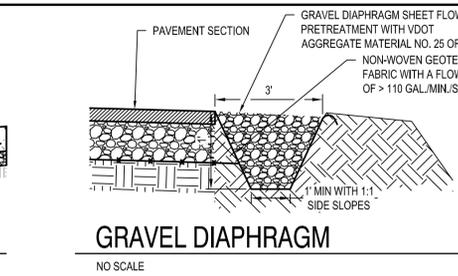
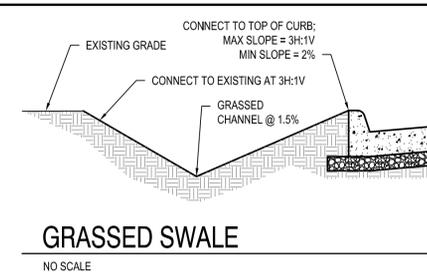
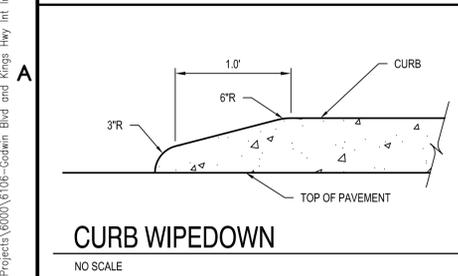


- 1- GRATES / SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-30-05, WITH THE EXCEPTION OF THE BRONZE GRATE.
- 2- CUSTOM DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS.
- 3- DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D5212 FOR CORRUGATED HDPE AND SDR 35 PVC.
- 4- STANDARD DRAIN BASIN HAS FIXED ADAPTOR LOCATIONS OF 0° & 180°. CUSTOM DRAIN BASIN ADAPTERS CAN BE MOUNTED AT ANY ANGLE 0° TO 360°.
- 5- DIMENSIONS ARE FOR REFERENCE ONLY ACTUAL DIMENSIONS MAY VARY.



8" CUSTOM DRAIN BASIN
NO SCALE

PLAN - KINGS HIGHWAY
SCALE: 1"=25'



NOT FOR
 CONSTRUCTION
 90%
 SUBMITTAL
 9-30-2016

GODWIN BOULEVARD AND KINGS HIGHWAY
 INTERSECTION IMPROVEMENTS
 CITY OF SUFFOLK, VA

CN NO: 6106
 DATE: SEPTEMBER 30, 2016
 DESIGN: WMP
 DRAWN: WSW
 REVIEW: DAB
 REVISIONS
 No. Date Description By

MAINTENANCE
 OF TRAFFIC
 NOTES AND
 DETAILS
MT-001

Page 6H-140 April 2015

Typical Traffic Control Lane Closure Operation through an Unsignalized Intersection (Figure TTC-67.0)

NOTES

Guidance:

- Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, 500'-800' where the posted speed limit is greater than 45 mph.

Standard:

- Channelizing device spacing shall be on 20' centers or less 100 feet in advance of the intersection.

Guidance:

- If room permits, a shadow vehicle with at least one rotating amber light or high intensity amber strobe light should be parked 80'-120' in advance of the first work crew.
- If the posted speed limit is 45 mph or greater, the shadow vehicle should have a truck-mounted attenuator.
- If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure TTC-36.

Option:

- At the stop condition intersecting roadway, additional flagger sign may be used (BE PREPARED TO STOP (W3-4)) between the ROAD WORK AHEAD and the flagger station in the proper sequence as directed by the Regional Traffic Engineer.

Guidance:

- If room permits, a shadow vehicle with at least one rotating amber light or high intensity amber flashing or oscillating light should be parked 80'-120' in advance of the first work crew.

Standard:

- For emergency situations (any non-planned operation) of 30 minutes or less duration, two rotating amber lights or high intensity amber flashing or oscillating lights mounted on the vehicle and visible for 360° shall be required in addition to the channelizing devices shown around the vehicle. Also, vehicle hazard warning signals shall be used.

Guidance:

- If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure TTC-36.

Support:

- Turns can be prohibited as required by vehicular traffic conditions. Unless the streets are wide, it might be physically impossible to make certain turns, especially for large vehicles.

1: Revision 1 - 4/1/2015

Page 6H-62 April 2015

Typical Traffic Control Lane Closure Operation in an Intersection (Figure TTC-28.1)

NOTES

Guidance:

- The control of traffic through the intersection in order of preference should be:
 - Obtain the services of law enforcement personnel.
 - Detour the effective routes to other roads and streets as approved and directed by the Regional Traffic Engineer.
 - Place a state certified flagger on each leg of the intersection controlling a single lane of traffic. Appropriate signing as shown should be used for law enforcement and flagging operations. For detour signs see Figure TTC-34.
- Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, 500'-800' where the posted speed limit is greater than 45 mph.

Standard:

- Channelizing device spacing shall be on 20' centers or less.

Guidance:

- If room permits, a shadow vehicle with at least one rotating amber light or high intensity amber flashing or oscillating light should be parked 80'-120' in advance of the first work crew.

Standard:

- For emergency situations (any non-planned operation) of 30 minutes or less duration, two rotating amber lights or high intensity amber flashing or oscillating lights mounted on the vehicle and visible for 360° shall be required in addition to the channelizing devices shown around the vehicle. Also, vehicle hazard warning signals shall be used.

Guidance:

- If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure TTC-36.

Support:

- Turns can be prohibited as required by vehicular traffic conditions. Unless the streets are wide, it might be physically impossible to make certain turns, especially for large vehicles.

1: Revision 1 - 4/1/2015

Page 6H-52 April 2015

Typical Traffic Control Lane Closure on a Two-Lane Roadway Using Flaggers (Figure TTC-23.1)

NOTES

Guidance:

- Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, and 500'-800' where the posted speed limit is greater than 45 mph.
- Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the flagger station and transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. Generally speaking, motorists should have a clear line of sight from the graphic flagger symbol sign to the flagger.

Option:

- Where Right-of-Way or geometric conditions prevent the use of 48" x 48" signs, 36" x 36" signs may be used.

Standard:

- Flagging stations shall be located far enough in advance of the work space to permit approaching traffic to reduce speed and/or stop before passing the work space and allow sufficient distance for departing traffic in the left lane to return to the right lane before reaching opposing traffic (see Table 6H-3 on Page 6H-5).
- All flaggers shall be state certified and have their certification card in their possession when performing flagging duties (see Section 6E.01, Qualifications for Flaggers).
- Cone spacing shall be based on the posted speed and the values in Table 6H-4 on Page 6H-6.
- A shadow vehicle with at least one high intensity amber rotating, flashing, or oscillating light shall be parked 80'-120' in advance of the first work crew.

Option:

- A supplemental flagger may be required in this area to give advance warning of the operation ahead by slowing approaching traffic prior to reaching the flagger station or queued traffic.

Guidance:

- If the queue of traffic reaches the BE PREPARED TO STOP (W3-4) sign then the signs, and if used the portable temporary rumble strips (PTRS), should be readjusted at greater distances.
- When a highway-rail crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the highway-rail grade crossing, the temporary traffic control zone should be extended so that the transition area precedes the highway-rail crossing (see Figure TTC-36 for additional information on highway-rail crossings).

Standard:

- At night, flagger stations shall be illuminated, except in emergencies (see Section 6E.08).
- Cones may be eliminated when using a pilot vehicle operation or when the total roadway width is 20 feet or less.
- For low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).

Option:

- When approved for use, three portable temporary rumble (PTRS) strips shall be installed across the entire travel lane adjacent to the BE PREPARED TO STOP (W3-4) sign. The portable temporary rumble strips shall be monitored and adjusted as necessary during the work shift to ensure proper placement on the roadway. When the PTRS are installed, the RUMBLE STRIPS AHEAD (W20-V26) sign shall also be utilized.

| | | |
|---------------------------------|------------|-------------|
| Posted Speed | 0 - 35 mph | 36 - 55 mph |
| PTRS Spacing (Center to Center) | 5 Feet | 8 Feet |

1: Revision 1 - 4/1/2015

Page 6H-16 April 2015

Typical Traffic Control Shoulder Operation with Minor Encroachment (Figure TTC-5.1)

NOTES

Standard:

- For required sign assemblies for multi-lane roadways see Note 1, TTC-4.

Guidance:

- Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.
- When work takes up part of a lane on a high volume roadway, vehicular traffic volumes, vehicle mix, speed and capacity should be analyzed to determine whether the affected lane should be closed. Unless the lane encroachment analysis permits a remaining lane width of 10 feet, the lane should be closed. If the closure operation is on a Limited Access highway, the minimum lane width is 11 feet.

Option:

- The ROAD WORK AHEAD (W20-1) sign on an intersecting roadway may be omitted where drivers emerging from that roadway will encounter another advance warning sign prior to this activity area.

Standard:

- A shadow vehicle with either an arrow board operating in the caution mode, or at least one high-intensity amber rotating, flashing, or oscillating light shall be parked 80' - 120' in advance of the first work crew.
- Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or oscillating lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, or oscillating lights.
- Taper length (L) and channelizing device spacing shall be at the following:

| Speed Limit (mph) | Taper Length (L) | | | |
|-------------------|------------------|-----|-----|-----|
| | 9 - 10 | 11 | 12 | 12 |
| 25 | 95 | 105 | 115 | 125 |
| 30 | 135 | 150 | 165 | 180 |
| 35 | 185 | 205 | 225 | 245 |
| 40 | 240 | 270 | 295 | 320 |
| 45 | 405 | 450 | 495 | 540 |
| 50 | 450 | 500 | 550 | 600 |
| 55 | 495 | 550 | 605 | 660 |
| 60 | 540 | 600 | 660 | 720 |
| 65 | 585 | 650 | 715 | 780 |
| 70 | 630 | 700 | 770 | 840 |

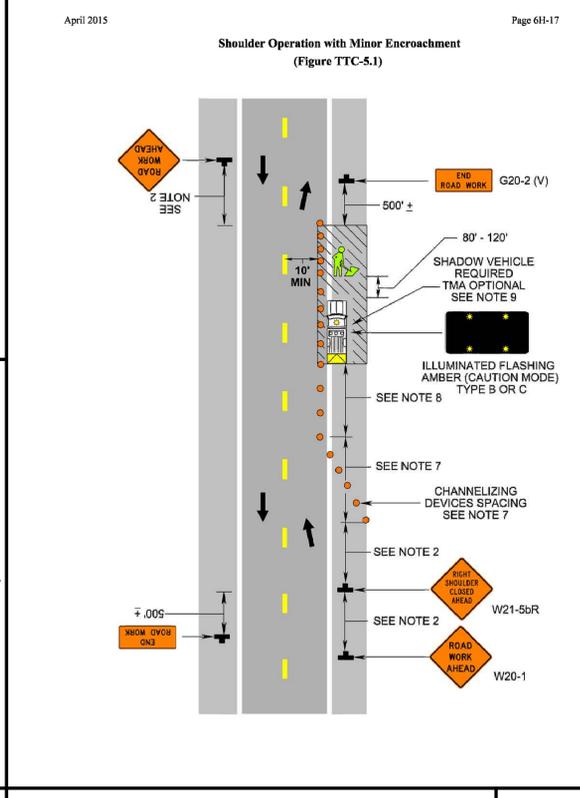
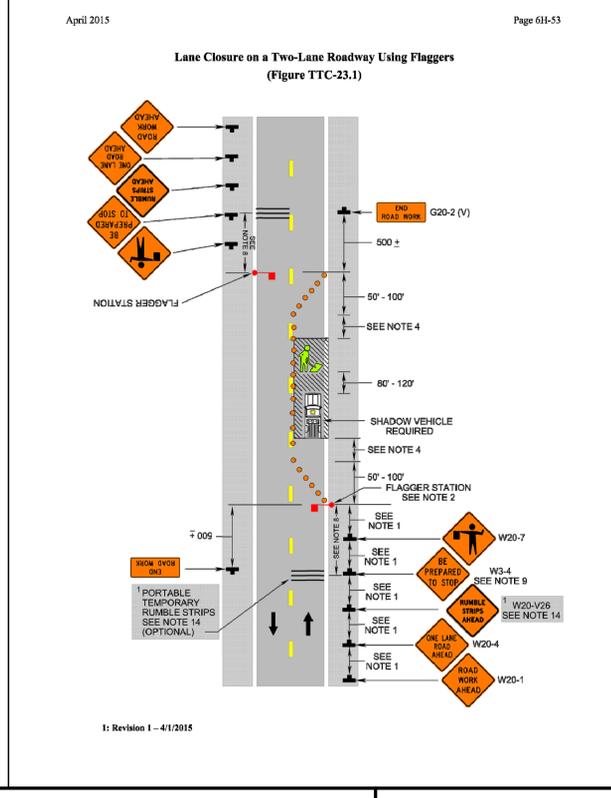
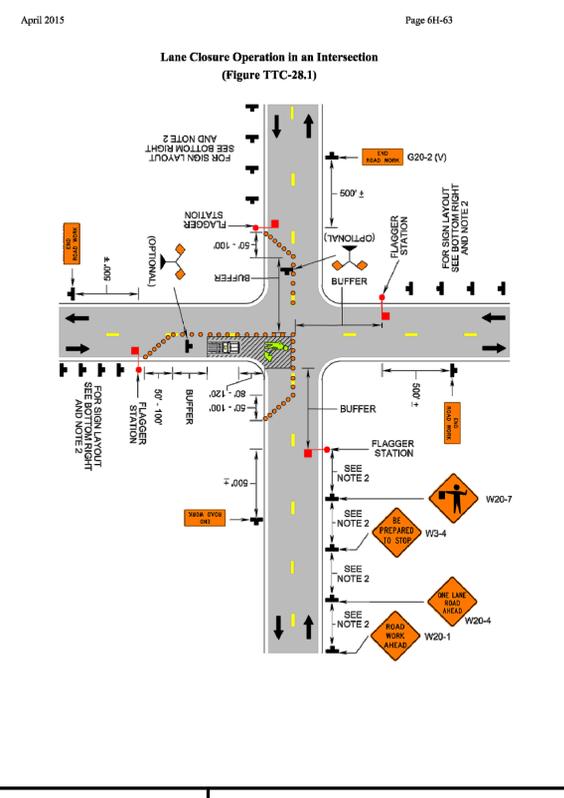
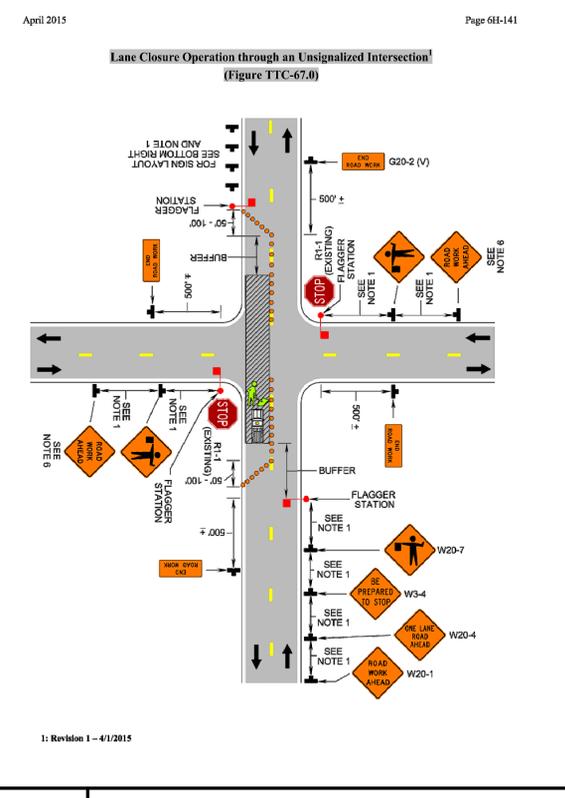
Minimum taper lengths for Limited Access highways shall be 1000 feet.
 Shoulder Taper = 1/2 L Minimum

On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the taper to direct vehicular traffic to remain within the traveled way.

- The buffer space length shall be as shown in Table 6H-3 on Page 6H-5 for the posted speed limit.
- A truck-mounted attenuator (TMA) shall be used on Limited Access highways and multi-lane roadways with posted speed limit equal to or greater than 45 mph.

When a side road intersects the highway within the temporary traffic control zone, additional traffic control devices shall be placed as needed.

1: Revision 1 - 4/1/2015



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CLARK NEXSEN

4525 Main Street, Suite 1400
Virginia Beach, VA 23462
757.455.5800

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SUBMITTAL
9-30-2016

GODWIN BOULEVARD AND KINGS HIGHWAY
INTERSECTION IMPROVEMENTS
CITY OF SUFFOLK, VA

CN NO: 6106
DATE: SEPTEMBER 30, 2016
DESIGN: WMP
DRAWN: WSW
REVIEW: IDJ
REVISIONS
No. Date Description By

TRAFFIC
SIGNALIZATION
PLAN

TS-101

SHEET 11 OF 19

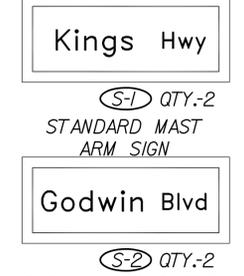
LEGEND

- CONDUIT
- SIGNAL POLE IDENTIFIER
- PROPOSED CONTROLLER CABINET
- UNINTERRUPTIBLE POWER SUPPLY (UPS)
- PROPOSED JUNCTION BOX
- 2-PHASE SAFETY SWITCH (CUT-OFF)
- PROPOSED CONDUIT
- PROPOSED SIGNAL HEAD
- PROPOSED PEDESTRIAN SIGNAL HEAD (STD SP-8) AND ACTUATION (STD PA-2)
- PROPOSED MAST ARM AND FOUNDATION
- PROPOSED EMERGENCY VEHICLE PRE-EMPTION DEVICE
- PROPOSED VIDEO DETECTION CAMERA
- PROPOSED MAST ARM MOUNTED SIGNS
- VIDEO DETECTION ZONE
- PEDESTRIAN PHASING

CABLE AND CONDUIT LEGEND

- 3" Conduit - 1/4"/7c, 3/4"/5c, 2-1/4"/3c, 1-ADC, 1/4VDC, 1-EVP
- 3" Conduit - 1/4"/7c, 3/4"/5c, 2-1/4"/3c, 1-ADC, 1/4VDC, 1-EVP (Install Empty 3" Spare Conduit)
- 2" Conduit - 2-1/4"/5c, 1/4"/3c, 1-EVP
- 2" Conduit - 1/4"/5c
- 2" Conduit - 1/4"/5c
- 2" Conduit - 1/4"/5c
- 3" Bored Conduit - 1/4"/7c, 6-1/4"/5c, 3-1/4"/3c, 1-ADC, 1/4VDC, 2-EVP
- 3" Bored Conduit - EMPTY
- 2" Conduit - 1/4"/5c, 1/4"/3c
- 4" Conduit - 1/4"/7c, 7-1/4"/5c, 4-1/4"/3c, 1-ADC, 1/4VDC, 2-EVP
- 2" Conduit - 3-#6 Conductor for Electrical Service
- 2" Conduit - 2-1/4"/5c, 1/4VDC, 1-EVP, 1-PTZ Cable
- 2" Conduit - 2-1/4"/5c, 2-1/4"/3c
- 3" Bored Conduit - 2-1/4"/5c, 2-1/4"/3c (Install Empty Spare 3" Bored Conduit)
- 4" Conduit - 1/4"/7c, 1/4"/5c, 6-1/4"/3c, 1-ADC, 2/VDC, 3-EVP, 1-PTZ Cable
- 2-#8 - Used for each Intersection Luminaire
- ADC - Aldis Video Detection Cable
- VDC - Video Detection Cable
- PTZ - Pan Tilt Zoom Camera Cable
- EPDC - Emergency Preemption Detector Cable

STANDARD MAST ARM SIGN

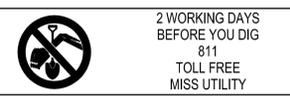


SIGNAL LAYOUT PLAN -

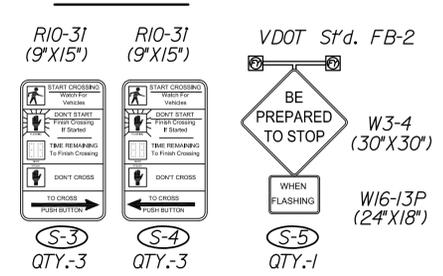
SCALE: 1"=25'

SPEED LIMITS

| | |
|--------------|--------|
| Godwin Blvd. | 35 MPH |
| Kings Hwy. | 35 MPH |



SIGNS

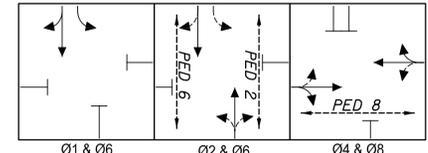


COLOR SEQUENCE CHART

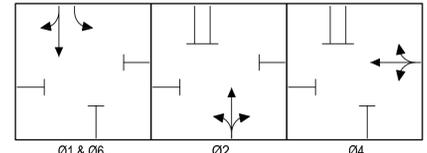
| SIGNAL | PHASE | | | | COMBINATIONS | | | FLASH | |
|--------|-------|----|----|---|--------------|------|------|-------|-------|
| | 1 | 2 | 4 | 6 | 8 | Ø1&6 | Ø2&6 | | Ø4&8 |
| 1 | ← | ↘ | | | G | ← | ↘ | G | Y |
| 2 | | | G | | | | | G | Y |
| 4 | | | | G | | | | G | Y |
| 6 | | | | | G | G | G | | Y |
| 8 | | | | | | G | | G | R |
| P2 | DW | W | DW | W | DW | DW | W | DW | BLANK |
| P6 | DW | DW | DW | W | W | DW | W | DW | BLANK |
| P8 | DW | DW | DW | W | W | DW | DW | W | BLANK |

BLANK BOXES DENOTE RED INDICATIONS

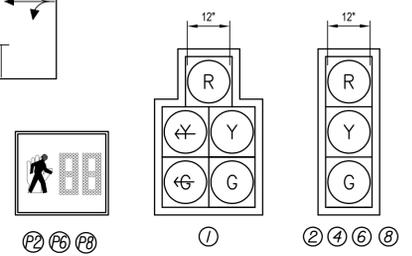
PHASING DIAGRAM



PREEMPTION PHASING DIAGRAM



PROPOSED SIGNAL HEADS



ALL SIGNAL HEADS SHALL HAVE 12" LENSES WITH BACKPLATES & TUNNEL VISORS. ALL INDICATIONS SHALL BE LED.

SIGNAL POLE & CONTROLLER LEGEND

(ALL DIMENSIONS ARE TO CENTER OF POLE)

- SIGNAL MAST ARM AND COMB. LUM. POLE, TYPE I (STD MP-3) 29' LT. of Godwin Blvd. Constr. @ Sta. 12+26
25' Arm 270° Angle to Godwin Blvd. Constr. @ 10' Luminaire Arm 270° Angle to Godwin Blvd. Constr. @ Signal Placement: 12.5', 20.5' Sign Placement: 7', 18.5' Video Detector: 8' Emergency Preemption Detector: 21' ALDIS Camera: 18'
- SIGNAL MAST ARM AND COMB. LUM. POLE, TYPE II (STD MP-3) 41.5' RT. of Godwin Blvd. Constr. @ Sta. 13+08
45' Arm 108° Angle to Godwin Blvd. Constr. @ 10' Luminaire Arm 108° Angle to Godwin Blvd. Constr. @ Signal Placement: 32', 40' Sign Placement: 21' Video Detector: 21' Emergency Preemption Detector: 27' PTZ Camera: 0' 50' Arm 90° Angle to Kings Hwy. Constr. @ 10' Luminaire Arm 90° Angle to Kings Hwy. Constr. @ Signal Placement: 38', 46' Sign Placement: 10'
- SIGNAL MAST ARM POLE, TYPE I (STD MP-3) 34' LT. of Godwin Blvd. Constr. @ Sta. 13+10
30' Arm 0° Angle to Godwin Blvd. Constr. @ Signal Placement: 6', 14' Sign Placement: ON UPRIGHT Emergency Preemption Detector: 10'
- PEDESTAL POLE PF-2 8' 23.8' RT. of Godwin Blvd. Constr. @ Sta. 12+15.50
- PEDESTAL POLE PF-2 8' 24.0' RT. of Godwin Blvd. Constr. @ Sta. 13+36
- CONTROLLER CABINET & FOUNDATION (CF-1) 57' RT. of Godwin Blvd. Constr. @ Sta. 13+06
Cabinet door hinge located on right side of pad. UPS cabinet on right side of cabinet when facing cabinet door Door hinge located on right side of UPS cabinet

NOTE: Luminaire(s) on combination signal pole(s) shall be 131W/165W Dilight StreetSense LED Street Lights Installed at a mounting height of 30.0' from the finished roadway surface to the center of the luminaire.

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GENERAL TRAFFIC SIGNAL NOTES:

1. ALL TRAFFIC SIGNAL WORK SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE CITY OF SUFFOLK PUBLIC FACILITIES MANUAL; THE CITY OF SUFFOLK TRAFFIC SIGNAL CONTROLLER CABINET SPECIFICATIONS, DATED 2015; THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) ROAD AND BRIDGE SPECIFICATIONS DATED 2016; THE VDOT ROAD AND BRIDGE STANDARDS, DATED 2016; THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), DATED 2009; THE VIRGINIA WORK AREA PROTECTION MANUAL, DATED 2011 WITH ANY REVISIONS AND THE 2011 NATIONAL ELECTRIC CODE.
2. THE CONTRACTOR SHALL CONTACT MISS UTILITY FOR UTILITY LOCATIONS 48 HOURS BEFORE BEGINNING CONSTRUCTION (1-800-552-7001).
3. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND/OR CATALOG CUTS FOR THE MAST ARM POLE, FOUNDATION DESIGN, CONTROLLER, CONTROLLER CABINET AND SIGNAL HEADS WITH HARDWARE TO THE ENGINEER. APPROVED COPIES SHALL BE SUPPLIED TO THE CITY TRAFFIC ENGINEER'S REPRESENTATIVE.
4. NO WORK SHALL COMMENCE WITH THE EXCEPTION OF THE SOIL SURVEY FOR THE FOUNDATIONS UNTIL ALL SUBMITTALS REQUIRED ARE RECEIVED AND REVIEWED BY THE CITY TRAFFIC ENGINEER'S REPRESENTATIVE.
5. A TRAFFIC SIGNAL INSPECTION FEE MUST BE PAID AT LEAST THIRTY (30) DAYS PRIOR TO CONSTRUCTION BEGINNING. A FIFTEEN (15) DAY NOTICE IS REQUIRED TO SCHEDULE INSPECTION SERVICE PRIOR TO ANY CONSTRUCTION BEGINNING.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE OPERATION OF THE TRAFFIC SIGNAL AND ITS COMPONENTS FROM THE TIME WORK COMMENCES UNTIL SUCH TIME AS THE 30-DAY TEST PERIOD HAS BEEN COMPLETED AND THE SIGNAL HAS BEEN ACCEPTED BY THE CITY. THE CONTRACTOR SHALL RESPOND TO EMERGENCY REPAIR NOTIFICATIONS WITHIN TWO (2) HOURS.
7. THE 30-DAY TEST PERIOD SHALL BEGIN ONLY AFTER ITEMS SHOWN ON THE CITY PUNCH LIST HAVE BEEN COMPLETED. SEE APPENDIX 3.3 OF THE CITY SPECIFICATIONS FOR PUNCH LIST REQUIREMENTS.
8. UPON COMPLETION OF THE TRAFFIC SIGNAL, THE CONTRACTOR SHALL SUBMIT TO THE CITY TRAFFIC ENGINEER'S REPRESENTATIVE AN ACCURATE AND TO SCALE AS-BUILT TRAFFIC SIGNAL PLANS. THE AS-BUILTS SHALL BE SUPPLIED IN BOTH A PRINTED AND ELECTRONIC FORMATS USING AUTOCAD 2007 OR LATER. ALL MEASUREMENTS FOR THE PLACEMENT OF SIGNAL HEADS, SIGNS, AND CAMERAS ON MAST ARMS SHALL BE TAKEN FROM THE FLANGE TO THE CENTER OF THE SIGNAL HEAD AND SIGNS.

SIGNAL POLES, FOUNDATIONS, CONTROLLER CABINET AND EQUIPMENT

1. MAST ARM POLE FOUNDATIONS SHALL BE VDOT STANDARD PF-8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING SOIL BORINGS AND REVIEWING THE ELEVATIONS FOR THE TOP OF THE FOUNDATIONS. A FOUNDATION DESIGN SHALL BE PREPARED AND SUBMITTED FOR APPROVAL BY A PROFESSIONAL ENGINEER LICENSED IN VIRGINIA. THE ELEVATION OF THE TOP OF THE FOUNDATION SHALL BE WITHIN 4"-6" ABOVE THE FINISHED GROUND GRADE. IF EXISTING CONDITIONS DO NOT ALLOW FOR THE USE OF A VDOT STANDARD PF-8 FOUNDATION, NOTIFY THE CITY TRAFFIC ENGINEER'S REPRESENTATIVE.
2. THE CONTRACTOR SHALL STAKE SIGNAL POLE LOCATIONS AND VERIFY MAST ARM LENGTHS WITH THE CITY TRAFFIC ENGINEER'S REPRESENTATIVE PRIOR TO DRILLING FOUNDATIONS. CONTACT ROBERT LEWIS AT (757)-514-7603 FOR VERIFICATION.
3. THE CONTROLLER SHALL BE A PEEK, ATC 1000 - OR - MCCAIN ATC EX NEMA TS2 UNIT. SEE CITY WEBSITE FOR SPECIFICATIONS.
4. THE CONTROLLER CABINET SHALL BE NO LESS THAN 54" HIGH, 44" WIDE AND 24" DEEP AND SHALL BE LARGE ENOUGH TO PROVIDE FOR EASE OF MAINTENANCE TO THE CONTROLLER AND AUXILIARY EQUIPMENT. THE CABINET SHALL BE WIRED IN ACCORDANCE WITH CITY SPECIFICATIONS. THE FOUNDATIONS SHALL BE VDOT CF-1.
5. POLE FOUNDATIONS, POLES, AND MAST ARMS SHALL BE DESIGNED TO ACCOMMODATE THE LOAD SHOWN ON THE PLANS.
6. ALL SIGNAL POLE AND CONTROLLER CABINET FOUNDATION GROUND RODS SHALL BE PLACED IN THE NEAREST JUNCTION BOX. THE ELECTRICAL SERVICE GROUND ROD SHALL BE PLACED IN A JB-S2 JUNCTION BOX AND SHALL BE IN CONFORMANCE WITH CITY SPECIFICATIONS (SEE WEBSITE).
7. PEDESTRIAN PUSH BUTTONS ARE TO BE LOCATED ON THE MAST ARM POLES UNLESS OTHERWISE SHOWN ON PLANS, IN ACCORDANCE WITH VDOT STD'D PA-2. THE POLARA "BULLDOG" PUSH BUTTON IS TO BE USED WITH A BLACK COLOR.
8. TRAFFIC MAST ARM POLES SHALL CONFORM TO THE VDOT MP-3. ALL HARDWARE SHALL BE GALVANIZED. A MINIMUM 15' CLEARANCE SHALL BE MAINTAINED BETWEEN THE HIGHEST POINT OF THE PAVEMENT SURFACE TO THE LOWEST POINT OF THE SIGNAL HEAD ASSEMBLY, INCLUDING THE BACKPLATE.
9. PEDESTAL POLES SHALL CONFORM TO VDOT PF-2 SPECIFICATIONS.

DETECTION EQUIPMENT

1. EMERGENCY PRE-EMPTION SHALL BE INSTALLED USING THE GTT OPTICOM SYSTEM GPS INTERSECTION EQUIPMENT, TO INCLUDE MODEL 764 MULTIMODE PHASE SELECTOR.
2. THE VIDEO DETECTION SYSTEM SHALL BE THE ALDIS GRIDSMART FISHEYE CAMERA WITH MOUNTING ASSEMBLY, CABLE AND CONNECTIONS. SEE CITY WEBSITE FOR CURRENT SPECIFICATIONS.

TRAFFIC SIGNAL HEADS

1. SIGNAL MOUNTING SHALL CONFORM TO STANDARD SM-3. SEE CITY WEBSITE FOR SPECIFICATIONS.
2. SIGNAL HEADS SHALL BE LED. ALL SIGNAL HEADS SHALL HAVE FULL TUNNEL-VISORS FOR EACH INDIVIDUAL 12" SECTIONS. ALL TRAFFIC SIGNAL HEADS SHALL HAVE BACK PLATES. ALL ITEMS SHALL BE IN ACCORDANCE WITH CITY SPECIFICATIONS.
3. ALL MEASUREMENTS FOR THE PLACEMENT OF SIGNAL HEADS, SIGNS, AND CAMERAS AS SHOWN ON PLANS; ARE TAKEN FROM THE CENTER OF THE SIGNAL POLE TO THE CENTER OF THE SIGNAL HEAD AND SIGNS ON THE MAST ARM.

4. PEDESTRIAN HEADS SHALL BE:
1) DIALIGHT COUNTDOWN PEDESTRIAN SIGNAL #430-6479-001X - OR APPROVED EQUAL
2) PELCO UPPER AND LOWER ARM ASSEMBLY #SE 3148-P34 - OR APPROVED EQUAL
3) PEEK TRAFFIC MAINTENANCE HOUSING #4302A-02-01-01 - OR APPROVED EQUAL
- ### CONDUIT, CONDUCTOR AND ELECTRICAL
1. ALL JUNCTION BOXES SHALL BE VDOT STANDARD JB-S2 UNLESS OTHERWISE NOTED.
 2. ALL CONDUITS UNDER PAVEMENT SHALL BE BORED AT A MINIMUM DEPTH OF 24". ALL OTHER CONDUIT SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD ECI-1 AT A MINIMUM DEPTH OF 18".
 3. THE CONTRACTOR SHALL ARRANGE FOR ELECTRICAL SERVICE FOR THE SIGNAL AND FOR NATURAL GAS SERVICE (IF SPECIFIED ON PLANS) FOR THE UPS SYSTEM. ALL FEES REQUIRED TO PROVIDE THIS SERVICE SHALL BE BILLED DIRECTLY BY THE UTILITY COMPANY TO THE DEVELOPER/CONTRACTOR. THE CITY TRAFFIC ENGINEER WILL FURNISH THE CONTRACTOR WITH BILLING ACCOUNT INFORMATION FOR UTILITY COMPANIES.
 4. ALL TRAFFIC SIGNAL WIRE SHALL BE NUMBER 14 AWG, UNLESS OTHERWISE SPECIFIED. A CONTINUOUS WIRE (NO SPLICES) SHALL BE RUN BETWEEN THE CONTROLLER CABINET AND THE SIGNAL HEAD.
 5. LOCATION OF JUNCTION BOXES AND OPTICOM DETECTORS ARE TO BE LOCATED BY THE CONTRACTOR AND FIELD REVIEWED BY THE CITY TRAFFIC ENGINEER'S REPRESENTATIVE PRIOR TO INSTALLATION.
 6. CONDUITS SHALL BE INSTALLED SO THAT MOISTURE WILL DRAIN PER SECTION 700.04(H) OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS.
 7. AN UNINTERRUPTIBLE POWER SUPPLY (UPS) SHALL BE PROVIDED WITH EACH TRAFFIC SIGNAL AND BE CEPSI MODEL TRUPS-4 WITH REQUIRED ACCESSORIES SHOWN IN APPENDIX 3.4 OF CITY SPECS. THE UPS SHALL INCLUDE THE UNINTERRUPTIBLE POWER SUPPLY, THE BATTERIES, CABINET AND THE ADDITIONAL EQUIPMENT NECESSARY TO PROVIDE POWER WHEN THE ELECTRICITY IS OFF FROM THE POWER COMPANY. SEE CITY WEBSITE FOR CURRENT SPECIFICATION.
 8. ELECTRICAL SERVICE SHALL CONFORM TO VDOT STANDARD SE-5. SAFETY SWITCHES SHALL BE ENCLOSED IN A RAIN TIGHT BOX CONFORMING TO THE REQUIREMENTS OF NEMA 3R, WITH A LOCK-ON/LOCK-OFF EXTERNAL SWITCH HANDLE. THERE SHALL BE A 100 AMP CIRCUIT BREAKER DISCONNECT WITH 40 AMP BREAKER TO CONTROLLER AND 20 AMP BREAKER TO UPS.
 9. STREET LIGHTING LUMINAIRES SHALL FEATURE A "COBRA HEAD" DESIGN WITH 12' ARMS AND CITY APPROVED LED LIGHT FIXTURES. SEE CITY WEBSITE FOR CURRENT SPECIFICATIONS.

INTERCONNECT

1. CONNECTION TO THE CITY'S FIBER NETWORK TO ESTABLISH COMMUNICATION BETWEEN THE TRAFFIC SIGNAL CABINET AND THE SIGNAL CONTROL ROOM AT PW TRAFFIC OPERATIONS CENTER SHALL BE PROVIDED TO THE TRAFFIC SIGNAL. CONNECTION TO THE CITY'S FIBER NETWORK SHALL BE ACCOMPLISHED BY ROUTING A FIBER OPTIC LINE TO FIRE STATION #9 LOCATED ON KINGS HWY. ROUTING OF CABLE SHALL BE APPROVED BY CITY TRAFFIC ENGINEER. ALL EQUIPMENT/METHODS TO BE UTILIZED SHALL BE APPROVED BY CITY TRAFFIC ENGINEER. STANDARD PREAPPROVED EQUIPMENT LIST IS AVAILABLE FROM CITY WEBSITE.

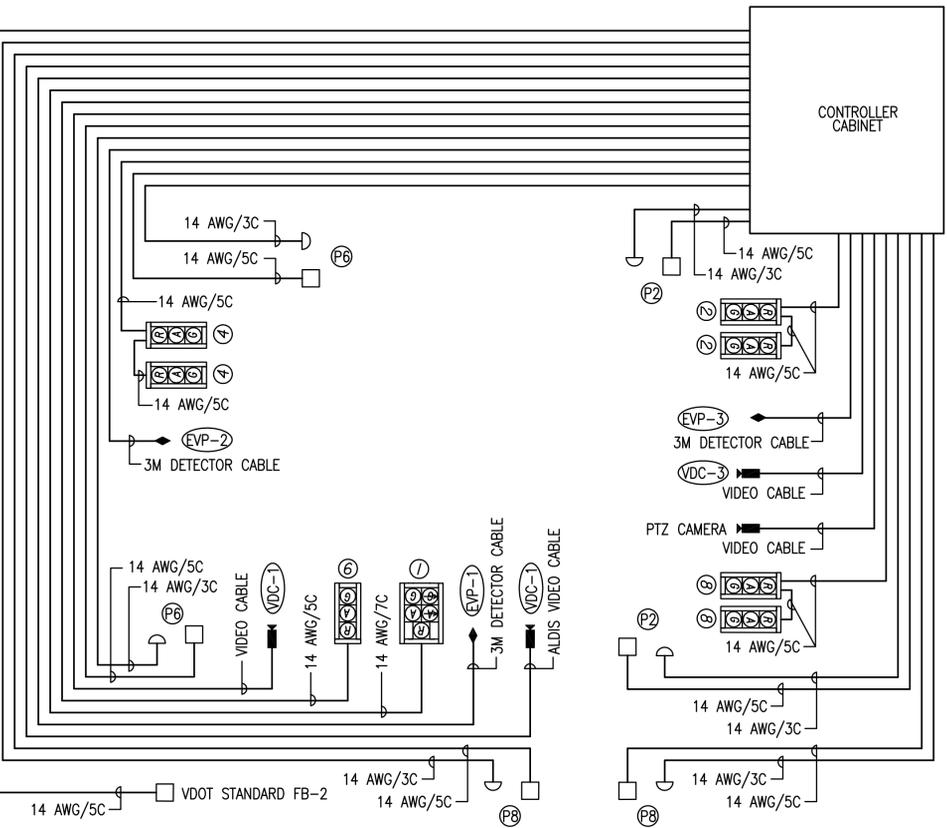
SIGNAND AND PAVEMENT MARKINGS

1. THE CONTRACTOR SHALL INSTALL THE PAVEMENT MARKINGS AS SHOWN ON PLAN SHEET CT-101. ALL PAVEMENT MARKINGS THAT ARE IN CONFLICT SHALL BE ERADICATED. ALL PAVEMENT MARKINGS APPLIED SHALL BE IN CONFORMANCE WITH THE CITY OF SUFFOLK PAVEMENT MARKING STANDARDS AND DETAILS SHOWN ON SHEET CT-501. PLEASE NOTE THAT THE CITY TRAFFIC ENGINEER'S OFFICE SHALL BE NOTIFIED 72 HOURS IN ADVANCE OF ANY APPLICATION OF PAVEMENT MARKINGS.
2. STANDARD MAST ARM SIGNS SHALL BE INTERNALLY ILLUMINATED STREET NAME SIGNS AND SHALL BE SOUTHERN MANUFACTURING "CLEAN PROFILE" LED SIGNS OR APPROVED EQUAL. SIGNS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH CITY SPECIFICATIONS AND STANDARDS SECTION 4.2.3.3 (SEE CITY WEBSITE).

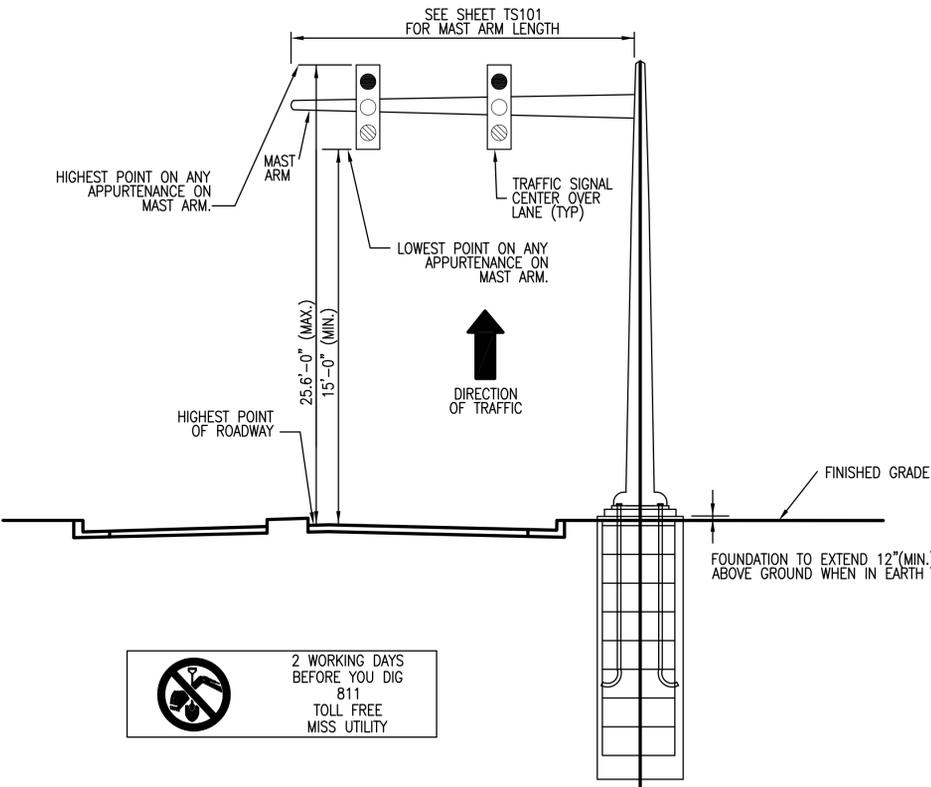
TRAFFIC SIGNAL INSPECTION REQUIREMENTS:

1. PRIOR TO ANY WORK BEGINNING, A PRECONSTRUCTION MEETING WILL BE REQUIRED WITH TRAFFIC ENGINEERING. CALL (757) 514-7603 TO SCHEDULE.
2. A CITY RIGHT-OF-WAY PERMIT SHALL BE SECURED BY THE CONTRACTOR FOR ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY (757-514-7610)
3. A TRAFFIC CONTROL PLAN MUST BE SUBMITTED AND APPROVED BY TRAFFIC ENGINEERING PRIOR TO APPROVAL OF A RIGHT-OF-WAY PERMIT.
4. A SUPERVISOR, CERTIFIED BY IMSA (INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION) SHALL BE ON SITE ANYTIME WORK IS BEING COMPLETED ON A TRAFFIC SIGNAL. 24-HOUR/DAY, 7-DAY/WEEK CONTACT INFORMATION FOR THE CONTRACTOR STAFF SHALL BE PROVIDED TO TRAFFIC ENGINEERING PRIOR TO RIGHT-OF-WAY PERMIT APPROVAL.
5. AFTER NOTE A5 ABOVE IS COMPLETED, A 48-HOUR NOTIFICATION WILL BE REQUIRED AT (757) 514-7603 TO SCHEDULE INSPECTION OF THE FOLLOWING ITEMS PRIOR TO WORK COMMENCING.
 - a. ALL EQUIPMENT LOCATION STAKE OUT.
 - b. ALL FOUNDATIONS PRIOR TO CONCRETE POUR INCLUDING POLES, CABINETS AND AUXILIARY EQUIPMENT.
 - c. ALL CONDUIT CONNECTIONS PRIOR TO BACKFILLING, INCLUDING JUNCTION BOX CONNECTIONS.
 - d. ALL CONDUIT RUNS MAY BE REQUIRED TO HAVE A CONDUIT MANDRAL PULLED THROUGH THEM PRIOR TO WIRE INSTALLATION.
 - e. A TRAFFIC ENGINEERING REPRESENTATIVE MUST BE PRESENT PRIOR TO TURN-ON OF ANY NEW EQUIPMENT/INSTALLATION.
 - f. TRAFFIC ENGINEERING WILL COMPLETE AN EXTENSIVE REVIEW OF ALL ASPECTS OF SIGNAL, SIGN AND PAVEMENT MARKING WORK AND ANY PUNCH LIST ITEMS CORRECTED PRIOR TO ACCEPTANCE BY THE CITY.
 - g. CONTRACTORS MUST SECURE ALL REQUIRED PERMITS FOR ELECTRICAL AND GAS WORK FROM THE CITY DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT PRIOR TO BEGINNING WORK (757-514-4150).

TRAFFIC SIGNALIZATION WIRING DIAGRAM



TRAFFIC SIGNAL POLE DETAIL (NTS)



4525 Main Street, Suite 1400
Virginia Beach, VA 23462
757.455.5800

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90% SUBMITTAL
9-30-2016

GODWIN BOULEVARD AND KINGS HIGHWAY
INTERSECTION IMPROVEMENTS
CITY OF SUFFOLK, VA

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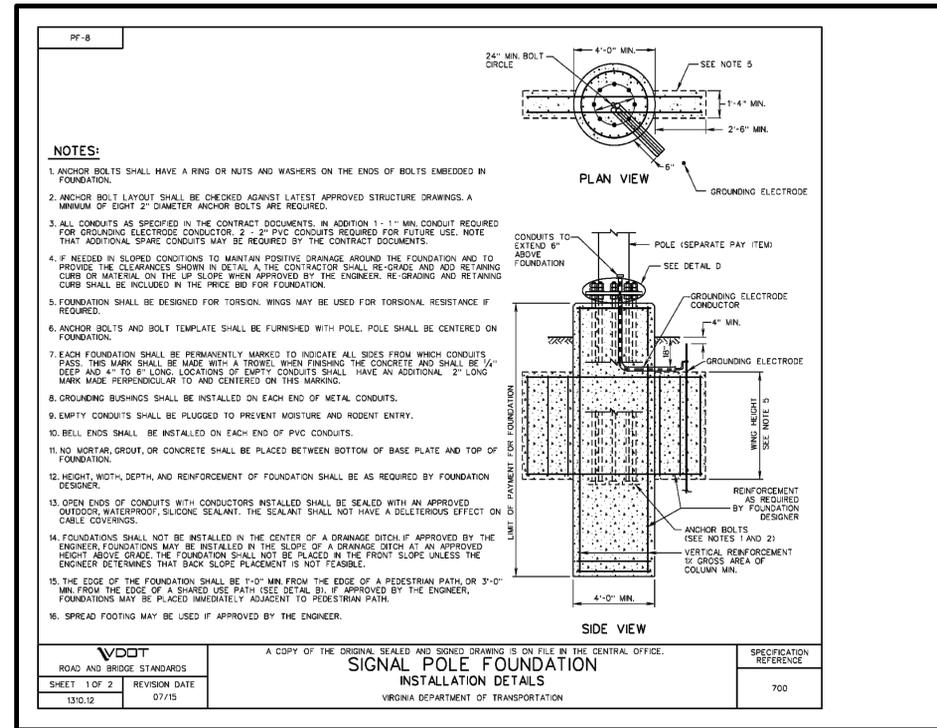
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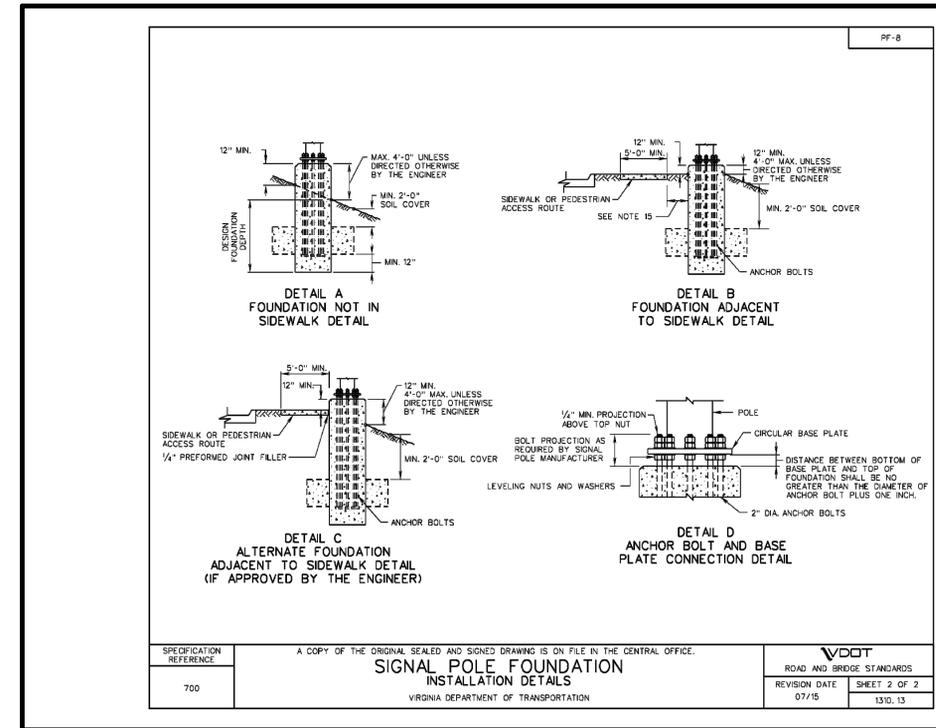
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NOTE:
CONTRACTOR TO SUBMIT AN ANCHOR BOLT / FOUNDATION DESIGN TO THE ENGINEER BASED ON POLE SELECTED

VDOT PF-8 SIGNAL POLE FOUNDATION INSTALLATION DETAIL

NO SCALE



2 WORKING DAYS BEFORE YOU DIG
811
TOLL FREE MISS UTILITY

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9-30-2016

GODWIN BOULEVARD AND KINGS HIGHWAY
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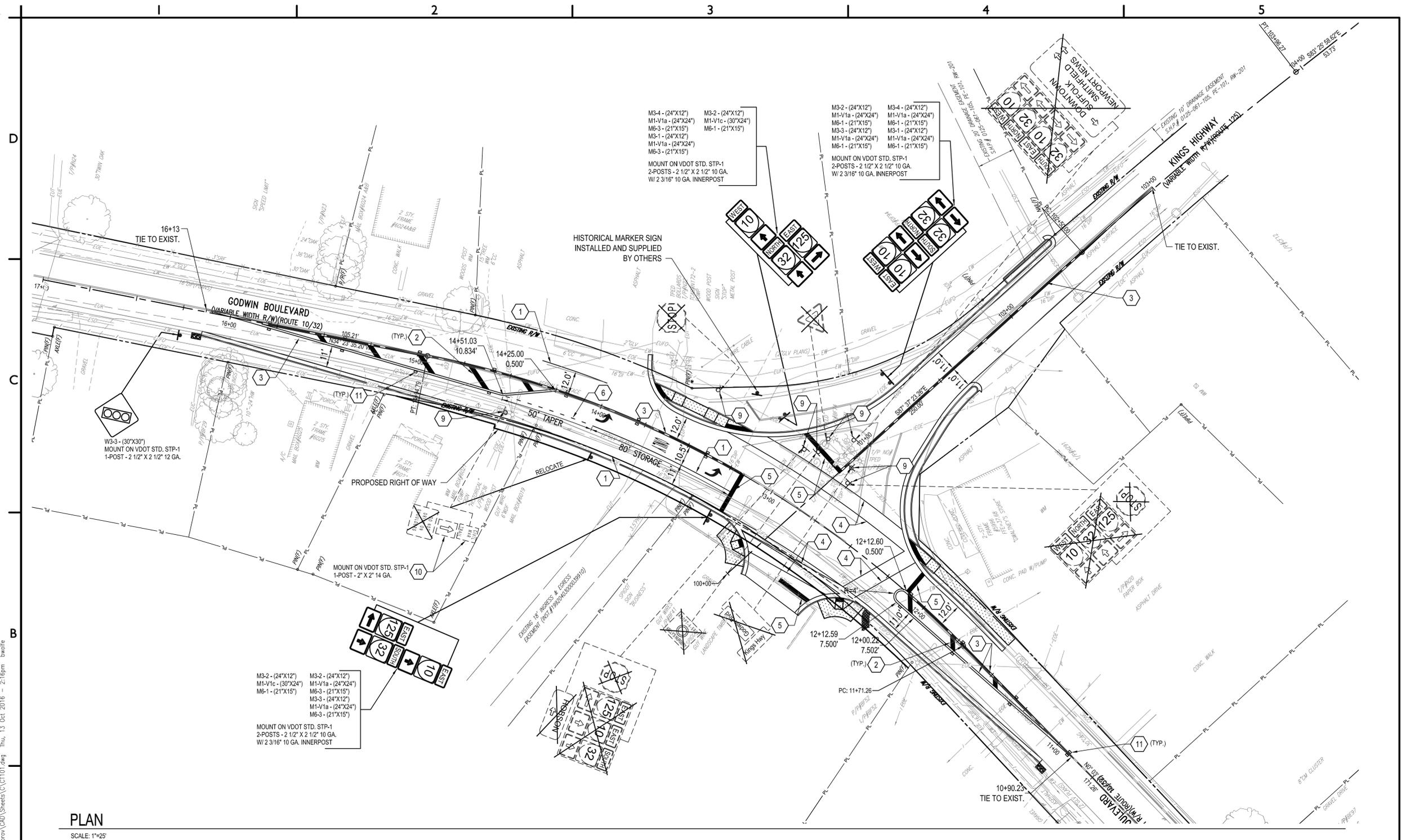
TRAFFIC SIGNAL
DETAILS

TS-501

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**GODWIN BOULEVARD AND KINGS HIGHWAY
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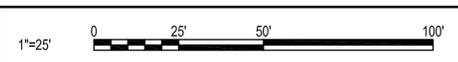


PLAN
SCALE: 1"=25'

PAVEMENT MARKING NOTES

1. TYPE B. CLASS I. WHITE PAVEMENT LINE MARKING. 4" WIDTH
2. TYPE B. CLASS I. YELLOW PAVEMENT LINE MARKING. 24" WIDTH
3. TYPE B. CLASS I. DOUBLE YELLOW PAVEMENT LINE MARKING. 4" WIDTH
4. TYPE B. CLASS I. WHITE PAVEMENT LINE MARKING. 6" WIDTH
5. TYPE B. CLASS I. WHITE PAVEMENT LINE MARKING. 24" WIDTH
6. TYPE B. CLASS I. WHITE PAVEMENT LINE MARKING. 4" WIDTH (2' LINE. 4' SPACE)
7. PAVEMENT MESSAGE MARKING ELONGATED ARROW SINGLE
8. PAVEMENT MESSAGE MARKING ELONGATED ARROW DOUBLE
9. REMOVE AND SALVAGE GROUND MOUNTED SIGN STRUCTURE AND SIGN PANEL
10. RELOCATE EXISTING GROUND MOUNTED SIGN PANEL
11. SNOW PLOWABLE RAISED PAVEMENT MARKER ASPH. CONC.

GRAPHIC SCALE(S)



**SIGNAGE AND
PAVEMENT
MARKING PLAN**

CT-101

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PAVEMENT
MARKING
DETAILS

CT-501

SHEET 15 OF 19

City of Suffolk Pavement Marking Standards

Pavement Markings and Markers

Scope: The purpose of these Specifications is to provide the minimum requirements of the City of Suffolk for any Pavement Marking activity that goes on in the Public Right of Way. It is to be in addition to the VDOT Road and Bridge Specifications. All references made to the VDOT Road and Bridge Specifications refer to the January 2002 edition.

Materials:

1. All Pavement Marking Materials (including paint, thermoplastic, and glass beads) shall conform to all VDOT Specifications.
2. Type A paint is only to be used by the direction of the office of the City Traffic Engineer.
3. Thermoplastic material shall be of alkylid base binder.

Section I. Lane, Edge and Centerline Markings

- 1.1 White lane lines, either solid or skip lines will be 4" unless otherwise stated in plans.
- 1.2 Lane lines on an approach to a signalized intersection will be solid white for a distance of not less than 120' measured from Stop Bar or equal to the length of the Solid Lane Lines, for adjacent auxiliary Right and or Left Turn Lane Lines.
- 1.3 Lane Lines that delineate the edge of the Turn Lane will be 4" Solid white lines and they will continue continuously from the beginning of the full width of the turn lane to the Stop Bar. Mini Skips will be extended from the lane line to the end of the transition.
- 1.4 Edge Lines, when noted on the plan will be solid white lines 4" wide, but solid yellow lines are to be used when adjacent to a median which separates opposing directions of vehicular traffic. Edge Lines are not to be used with curb and gutter on the outside lane.
- 1.5 Centerlines on an undivided highway will be solid double yellow lines 4" wide separated by 4" space.
- 1.6 On minor approaches to an arterial or collector, lane lines, edge lines, and/or centerlines will be extended a minimum distance of 100' from the Stop Bar.

Section II. Crosswalks

- 2.1 Crosswalk Lines will be solid white lines, 6" wide, marking both edges of the crosswalk area.
- 2.2 Crosswalk Lines will extend from edge of pavement to edge of pavement or edge of shoulder as possible.
- 2.3 Lines forming a crosswalk will be parallel.
- 2.4 The width of a crosswalk will be 6', measuring from center of 6" line to center of 6" line. In heavy traffic areas crosswalks will be 10' in width.
- 2.5 In heavy traffic areas outside of the Downtown business area, crosswalks will have 2' wide consecutive white rectangles that will cover the entire width of the crosswalk perpendicular to the 6" white lines, spacing will be approximately 6' on center. They will be located so as to avoid normal wheel paths.

Section III. Median Markings

- 3.1 Center Lane Left Turn Only (Two way left turn lanes or Subside Lanes) will consist of two sets of one way barrier lines. 10' broken yellow lines with 30' space will be located inside Solid yellow lines.
- 3.2 Transverse median markings will consist of 2' yellow lines.

Section IV. Gore Markings

- 4.1 Markings will consist of 2' solid white or yellow transverse lines. Spaced as required by note #2 in Section 4.
- 4.2 Chevrons will be used when specified in approved plans.
- 4.3 2' Median, Gore, and Chevron markings will be spaced according to the posted speed limit as follows:
Spacing will match Posted speed limit up to a maximum spacing of 30'.

Section V. Stop Bars

- 5.1 Two feet wide solid white stop bars will completely transverse all traffic lanes on each approach at a signalized intersection, or approaches to an intersection with a "Stop" Sign control at major collectors and arterial roadways.
- 5.2 Stop Bars will be located at a minimum of 4' in advance of a crosswalk, unless otherwise specified on an approved plan.

Section VI. Pavement Legends

- 6.1 Legends will be transversely aligned across each lane, the distance between the arrow symbol and the Stop Bar will be 8'.
- 6.2 Arrows and Legends will not be placed prior to the Solid White Lane Lines.
- 6.3 Word Messages will be located in advance of its accompanying symbol by a distance of not less than 32', nor more than 80' from the symbol. After the 5' legend in a turn lane the spacing between legends may go to 100' maximum.
- 6.4 For Auxiliary Right and or Left Turn Lanes on all approaches, legends will be centered within the lane. They will continue the length of the lane beginning and ending with a symbol. Turn lanes will not be installed on an uncontrolled thru street at intersection without a signal.
- 6.5 Merge Arrows will be spaced according to the posted Speed Limit as follows:
a. Posted Speed <35 mph=80'
b. Posted Speed >35mph =120'

Section VII. Bicycle Lanes

- 7.1 Pavement markings consisting of arrow, bicycle and preferential lane symbols shall be placed at the beginning of the bicycle lane at right turn lanes. They shall also be placed at the end of the bicycle lane at right turn lanes if the solid white line separating the bicycle lane from the right turn lane is greater than 100' in length.
- 7.2 Bicycle lane symbols shall be placed a maximum of 500' apart.
- 7.3 The bicycle lane stripe shall be 4 feet from the edge of pavement on roads with curb & gutter unless otherwise noted on the plans or existing markings indicate otherwise.
- 7.4 The bicycle lane stripe shall be 5 feet from the face of curb on roadways without a gutter pan unless otherwise noted on the plans or existing markings indicate otherwise.

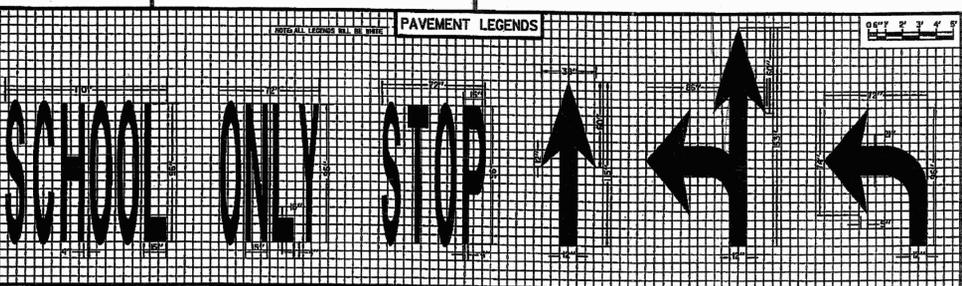
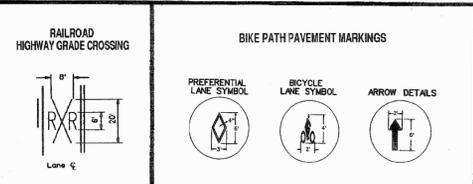
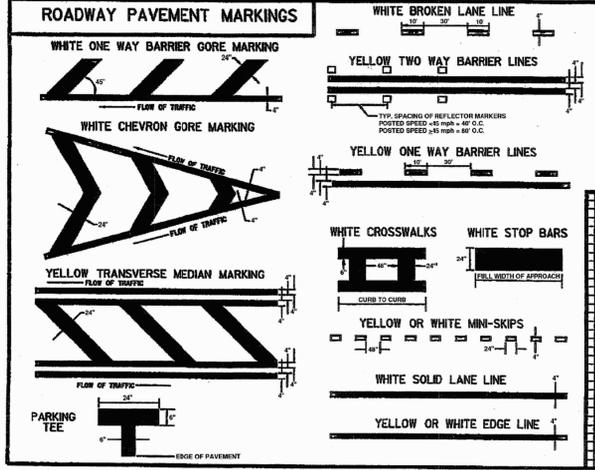
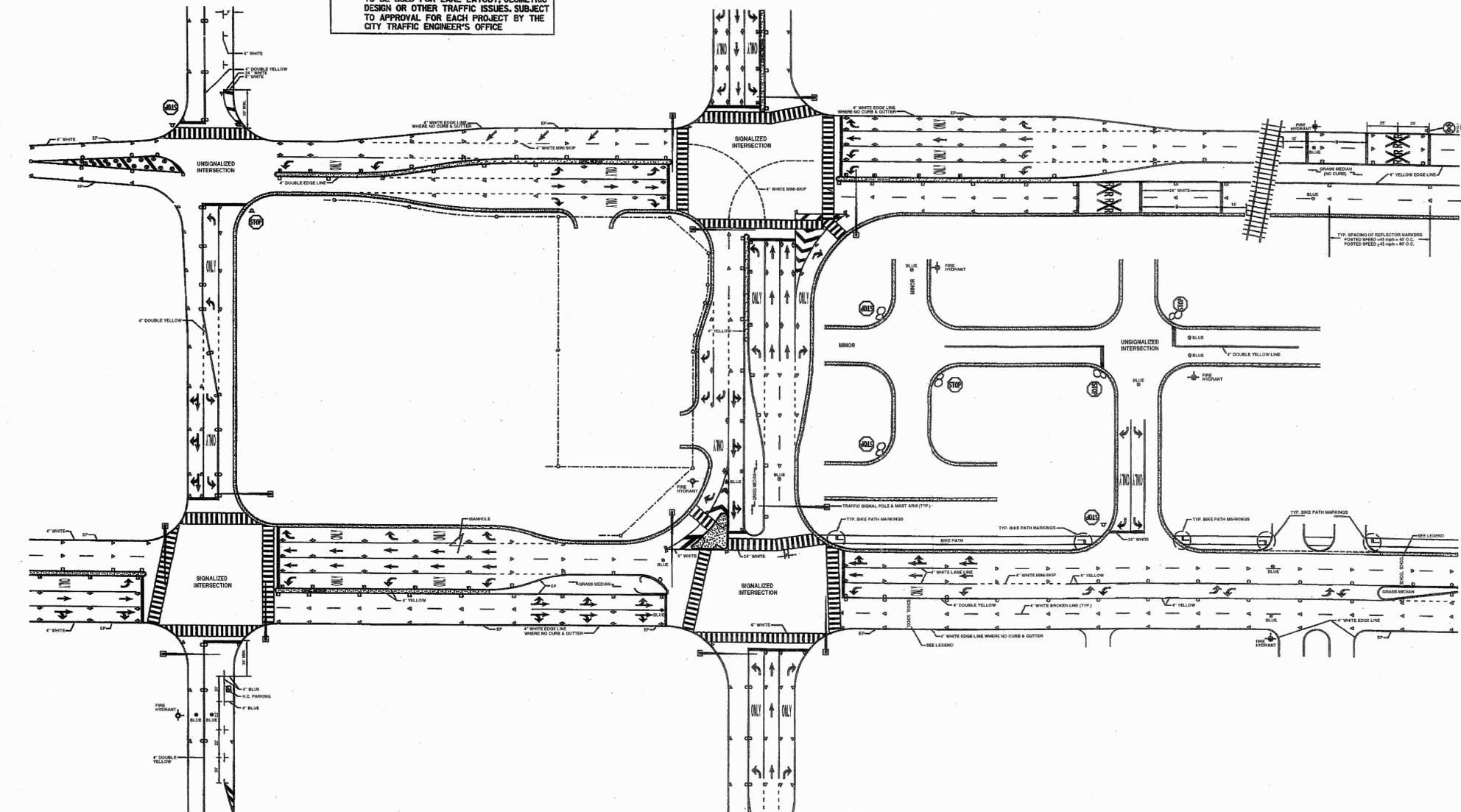
Section VIII. Parking Space Markings

- 8.1 All on street Parking Spaces will be a minimum of 20' long and a minimum of 8' wide.
- 8.2 All Parking Spaces will be marked with 6" lines.

Section IX. General Notes

- 9.1 Installation and Materials for all Pavement Markings and Legends will be in accordance with the City of Suffolk Department of Public Works/Traffic Engineering Division Specifications set forth in this document unless otherwise stated on the plans or in contract documents.
- 9.2 The contractor will note all special provisions of the contract specifically with the regard to Rate of Application, Maintenance of Traffic, Restricted Working Hours, and or Restricted Weather Conditions.
- 9.3 The Contractor will remove all previous Pavement Markings which in the opinion of the engineer will conflict with the new Pavement Markings. All eradication will be in accordance with the VDOT Specifications.
- 9.4 Before any markings will be applied in the Right of Way, the City Traffic Engineer's office must be notified 72 hours in advance. If this office is not notified and the markings do not meet with what the City Traffic Engineer's office considers proper, the markings will be eradicated and replaced at the sole expense of the contractor.
- 9.5 No Pavement Markings will be applied until 24 hours after rainfall, unless otherwise directed by the City Traffic Engineer's office.
- 9.6 Snow Plowable Pavement Markers will be installed only by direction of the City Traffic Engineer's office.
- 9.7 Only Alkyd Based Thermoplastic is to be used unless otherwise directed by the City Traffic Engineer's Office.
- 9.8 All pavement markings installed in the City's Right of Way, whether "Temporary or Permanent" will contain glass beads.

NOTE: THIS SHEET IS FOR PAVEMENT MARKING STANDARDS AND DETAILS ONLY. IT IS NOT TO BE USED FOR LANE LAYOUT, GEOMETRIC DESIGN OR OTHER TRAFFIC ISSUES. SUBJECT TO APPROVAL FOR EACH PROJECT BY THE CITY TRAFFIC ENGINEER'S OFFICE



COMMONWEALTH OF VIRGINIA
8/30/07
ROBERT E. LEWIS
LIC. No. 00538
PROFESSIONAL ENGINEER

CITY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
PAVEMENT MARKING
STANDARDS & DETAILS

Spell checked by GSEFDMA on 05/24/2015 2:46pm

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NOT FOR
CONSTRUCTION
90%
SUBMITTAL

9-30-2016

GODWIN BOULEVARD AND KINGS HIGHWAY
INTERSECTION IMPROVEMENTS
CITY OF SUFFOLK, VA

CN NO: 6106
DATE: SEPTEMBER 30, 2016
DESIGN: SAT
DRAWN: WSW
REVIEW: DAB

| REVISIONS | | |
|-----------|------|-------------|
| No. | Date | Description |
| | | |
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UTILITY GENERAL
NOTES

CU-001

UTILITY GENERAL NOTES:

1. LOCATION, DEPTHS AND SIZES OF EXISTING UTILITIES SHOWN ON THE PLANS ARE NOT GUARANTEED. THE CONTRACTOR SHALL FIELD VERIFY WITH TEST HOLES THE LOCATION, ELEVATION, TYPE, ROUNDNESS AND SIZE OF ALL EXISTING UNDERGROUND UTILITIES AND POINTS OF CONNECTION PRIOR TO EXCAVATION, ORDERING OF MATERIALS AND INSTALLATION FOR THIS PROJECT.
2. THE CONTRACTOR SHALL NOTE THAT THE UTILITY PLAN SHEETS ARE FOR CITY OF SUFFOLK WATER WORK ONLY. THE CONTRACTOR SHALL REFER TO THE ROADWAY PLANS FOR ROADWAY AND DRAINAGE DESIGN.
3. NO VALVES OR OTHER CONTROL DEVICE ON THE EXISTING WATER SYSTEM SHALL BE OPERATED FOR ANY PURPOSE BY THE CONTRACTOR. CITY EMPLOYEES WILL OPERATE ALL EXISTING VALVES. THE CONTRACTOR SHALL NOTIFY THE CITY OF SUFFOLK PUBLIC UTILITIES/CONSTRUCTION INSPECTION DIVISION (757-514-7078, CONTACT: MR. GENE WEAVER) 48 HOURS PRIOR TO THE NEED FOR VALVE OPERATIONS.
4. THE CONTRACTOR SHALL NOTIFY CITY OF SUFFOLK PUBLIC UTILITIES (757-514-7078) IMMEDIATELY IF ANY EXISTING WATER OR SEWER FACILITY IS DISTURBED.
5. THE CONTRACTOR SHALL NOT PERFORM ANY GRADING OPERATIONS OVER EXISTING WATER AND SEWER FACILITIES WITHIN THE PROJECT WHICH WOULD IN ANY WAY JEOPARDIZE SERVICES UNTIL THE PROPOSED WATER FACILITIES ARE INSTALLED AND PLACED INTO OPERATION. ANY DEVIATION MUST BE APPROVED BY THE OWNER.
6. EXISTING MAINS AND WATER SERVICES SHALL REMAIN IN SERVICE. PROPOSED FIRE HYDRANTS SHALL REMAIN COVERED BY MEANS OF SECURELY ATTACHED BURLAP BAGS UNTIL TESTED AND PLACED IN SERVICE.
7. THE CONTRACTOR SHALL NOT INSTALL WATER MAIN JOINTS BENEATH PROPOSED OR EXISTING UTILITIES OR PROPOSED VDOT STORM DRAINAGE WHEN CROSSING UNDER THESE STRUCTURES. A MINIMUM CLEARANCE OF 8 TO 10 FEET BEYOND THE OUTSIDE OF THE FOREIGN PIPE OR UTILITY SHALL BE REQUIRED WHEN PLACING JOINTS.
8. INSTALL VALVES WITH OPERATOR STEMS IN THE VERTICAL PLANE THROUGH THE PIPE AXIS AND PERPENDICULAR TO THE PIPE AXIS. LOCATE VALVES AS SHOWN ON DRAWINGS. NO VALVES SHALL BE LOCATED UNDER A CONCRETE GUTTER.
9. WATER MAIN SHALL BE LAID WITH BELL ENDS FACING THE DIRECTION OF LAYING. WHERE GRADE IS 10 PERCENT OR GREATER, PIPE SHALL BE LAID UPHILL WITH BELL ENDS UPGRADE.
10. ALL EXISTING VALVE BOXES, ON ACTIVE SYSTEMS SHALL BE ADJUSTED TO FINISH GRADE AS REQUIRED, REGARDLESS IF THEY ARE SHOWN ON THE PLANS.
11. THE CONTRACTOR, WITH HIS ASSOCIATED MATERIALS SUPPLIERS, SHALL PROVIDE CERTIFICATION ACCEPTABLE TO THE OWNER, THAT ALL PIPE MATERIALS SUPPLIED ON THE PROJECT MEET OR EXCEED THE SPECIFICATIONS.
12. ALL THRUST PROTECTION INSTALLED UNDER THIS CONTRACT SHALL BE PLACED BEFORE BACKFILLING OF THE TRENCH AND INSPECTED BY THE OWNER. TEMPORARY BUTTRESSING FOR TESTING SHALL BE PROVIDED BY THE CONTRACTOR. INSTALLATION OF APPROVED RETAINER GLANDS, TIE RODS, AND OTHER THRUST RESTRAINTS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
13. ALL IN-LINE VALVES OF ABANDONED WATER MAINS, SHALL BE ABANDONED BY HAVING CITY OF SUFFOLK FORCES CLOSE THE VALVE, THE CONTRACTOR SHALL THEN REMOVE THE OPERATING NUT AND CASTINGS, BACKFILL WITH SELECT MATERIAL AND PERFORM THE NECESSARY RESTORATION.
14. CONTRACTOR SHALL RESTRAIN EXISTING PIPE AT CONNECTIONS TO PROPOSED PIPE AND AT PLUGS IN ACCORDANCE WITH THE RESTRAINED LENGTH OF PIPE INDICATED ON THE DRAWINGS. BACKFILL REQUIREMENTS AT CONNECTION POINTS SHALL INCLUDE THE PLACEMENT OF CRUSHED STONE IN THE PIPE TRENCH BETWEEN THE TRENCH WALL AND THE PIPE AT A DEPTH OF NO LESS THAN THE SPRING LINE OF THE PIPE BEFORE THE PIPE IS PRESSURIZED. AT ALL OTHER LOCATIONS, ALL REQUIRED RESTRAINED PIPE LENGTHS SHALL BE BACKFILLED AND COMPACTED AS SPECIFIED PRIOR TO PRESSURIZING THE PIPE.
15. CONTRACTOR SHALL RECORD AND PROVIDE TO THE ENGINEER AND OWNER ACTUAL GROUND, TOP OF PIPE ELEVATIONS, ACTUAL STATIONS AND OFFSETS, AT ALL FITTINGS, CONNECTION POINTS AND HORIZONTAL DEVIATIONS GREATER THAN TWO (2) FEET FROM THE PLANS. STATION REFERENCES SHALL BE TIED TO CONSTRUCTION CENTER LINE FOR THE ROADWAY IMPROVEMENTS. THIS INFORMATION SHALL BE PROVIDED TO THE ENGINEER AND OWNER WITHIN FIVE (5) DAYS OF COMPLETION OF THE UTILITY ADJUSTMENTS.
16. THE CONTRACTOR SHALL COMPLY WITH "MISS UTILITY" REQUIREMENTS PRIOR TO PERFORMING ANY EXCAVATION (DIAL 811).
17. SYSTEM SHUTDOWN OPERATION:
 - A. THE CONTRACTOR SHALL SUBMIT A SEQUENCE OF UTILITY CONSTRUCTION TO THE CITY OF SUFFOLK PUBLIC UTILITIES DEPARTMENT A MINIMUM OF 14 DAYS PRIOR TO PRECONSTRUCTION CONFERENCE. SEQUENCE OF UTILITY CONSTRUCTION SHALL CONSIST OF A PRELIMINARY LIST OF DATES FOR UTILITY TIE-INS, CONNECTIONS AND SHUTDOWNS AND A LIST OF EQUIPMENT AND MATERIALS NEEDED TO PERFORM THE WORK. THE CONTRACTOR SHALL ALSO PROVIDE AT THIS TIME THE ANTICIPATED SHUTDOWN TIME REQUIRED AS WELL AS ANTICIPATED TIME OF DAY SCHEDULES FOR THE TIE-INS, CONNECTIONS AND SHUTDOWNS.
 - B. CONTRACTOR SHALL GIVE A TWO (2) WEEK NOTICE IN WRITING TO SUFFOLK PUBLIC UTILITIES FOR EACH CONNECTION AND/OR ADJUSTMENT TO THE EXISTING FACILITIES OWNED BY SUFFOLK. THE CONTRACTOR SHALL HAVE ADEQUATE PUMPING CAPABILITIES ON SITE TO HANDLE ANY EXCESS WATER. THE WRITTEN NOTIFICATION SHALL ALSO INCLUDE A SKETCH THAT INCLUDES EXISTING PIPE ELEVATIONS AND THE LOCATION OF JOINTS WITH RESPECT TO THE PROPOSED WATER MAIN TIE-IN LOCATIONS.
 - C. THE EXISTING CITY OF SUFFOLK FACILITIES SHALL REMAIN ACTIVE AT ALL TIMES. SHALL BE DEACTIVATED FOR A MAXIMUM PERIOD OF SIX (6) HOURS (NIGHTTIME SHUTDOWN) FOR EACH SCHEDULED SHUTDOWN. THE CONTRACTOR SHALL MAKE THE CONNECTION DURING EACH SHUTDOWN PERIOD.
 - D. PRIOR TO CUTTING ANY WATER MAIN, THE CONTRACTOR SHALL HAVE ALL FITTINGS, VALVES, PIPE AT THE SITE AND SHALL VERIFY IN THE PRESENCE OF THE OWNER THE CITY OF SUFFOLK THROUGH FIELD MEASUREMENTS, THAT ALL PIPING, FITTINGS AND VALVES WILL ALIGN AND FIT PROPERLY WITH THE EXISTING FACILITIES. NO WATER CAN BE IN THE TRENCH WITHIN TWO (2) FEET OF THE INVERT OF THE EXISTING MAIN. PRIMARY AND BACKUP PUMPING SHALL BE ON SITE TO REMOVE STANDING WATER IN THE TRENCH. EXISTING MAINS SHALL BE CAPPED AND RESTRAINED AT THE CONNECTION POINTS TO PREVENT DEBRIS FROM ENTERING THE MAINS DURING INSTALLATION OF THE PROPOSED PIPE. FURTHERMORE, ALL NEWLY CONSTRUCTED PIPE AND APPURTENANCES SHALL HAVE PASSED ALL NECESSARY TESTS IN THE PRESENCE OF AN INSPECTOR FROM THE CITY OF SUFFOLK AND SHALL BE CAPABLE OF BEING ACTIVATED ONCE THE ADJUSTMENT WORK HAS BEEN COMPLETED. CONNECTION TO EXISTING LINES SHALL BE MADE ONLY AFTER THE LINE IS INSTALLED, TESTED, AND APPROVED BY THE OWNER.

18. ACCESS TO ALL IN-SERVICE PUBLIC AND PRIVATE FIRE HYDRANTS WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. A MINIMUM CLEAR SPACE OF A 10 FOOT RADIUS AROUND THE HYDRANTS SHALL BE KEPT CLEAR OF ALL SOIL, STONE, MATERIALS, EQUIPMENT, AND OTHER OBSTRUCTIONS. THE CONTRACTOR SHALL NOTIFY THE CITY OF SUFFOLK 48 HOURS PRIOR TO WORK ON EXISTING FIRE HYDRANTS WITHIN THE PROJECT LIMITS. THE CONTRACTOR SHALL SCHEDULE HYDRANT INSTALLATIONS SO THAT NO TWO HYDRANTS IN LINE WILL BE OUT OF SERVICE AT THE SAME TIME. THE CONTRACTOR SHALL ALSO SEQUENCE EACH HYDRANT INSTALLATION FOR MINIMAL AMOUNT OF DOWNTIME. ALL POSSIBLE TRENCHING AND ASSEMBLY REQUIRED FOR THE NEW HYDRANT SHALL BE DONE PRIOR TO TAKING THE OLD HYDRANT OFF LINE. THE CONTRACTOR SHALL COORDINATE WITH THE CITY OF SUFFOLK PUBLIC UTILITIES FOR TESTING AND PAINTING OF NEW HYDRANTS. FIRE HYDRANT PAINTING SHALL BE CONSIDERED INCIDENTAL TO THE COST OF INSTALLATION AND SHALL BE IN ACCORDANCE WITH THE MATERIAL NOTE FOR FIRE HYDRANTS. ABANDONED FIRE HYDRANTS SHALL BE SALVAGED BY THE CITY OF SUFFOLK, AFTER REMOVAL BY THE CONTRACTOR.

19. FLUSHING AND DISINFECTION OF WATER MAINS: THE CONTRACTOR SHALL PROVIDE AT LEAST 48 HOURS NOTICE PRIOR TO SCHEDULED TESTING, FLUSHING AND INSPECTION. ONLY PROPERLY FUNCTIONING AND CLEAN EQUIPMENT SHALL BE USED FOR DISINFECTING WATER MAINS.

DISINFECTION SHALL BE IN ACCORDANCE WITH AWWA C651, LATEST REVISION AND VIRGINIA DEPARTMENT OF HEALTH WATERWORKS REGULATIONS, NO. 12 VAC 5-590-800-DISINFECTION. DISINFECTION PROCEDURE SHALL BE CARRIED OUT AFTER COMPLETION OF CONSTRUCTION AND IMMEDIATELY BEFORE THE MAINS ARE PLACED INTO SERVICE. DURING CONSTRUCTION, PRECAUTIONS SHALL BE TAKEN TO PROTECT PIPE INTERIORS, FITTINGS, AND VALVES AGAINST CONTAMINATION.

CLEANING AND SWABBING OF THE INTERIOR OF THE PIPE MAY BE REQUIRED IF CONTAMINATION CANNOT BE REMOVED BY ORDINARY FLUSHING AND DISINFECTION PROCEDURES. THE CLEANING AND SWABBING SHALL BE PERFORMED WITH A 5% HYPOCHLORITE DISINFECTING SOLUTION, OR OTHER DISINFECTING AGENT APPROVED BY THE INSPECTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TREATING THE DISCHARGE DURING DISINFECTION, TESTING, AND FLUSHING ACTIVITIES.

WATER MAINS SHALL BE FLUSHED EVERY 2,000 FEET UNLESS THE INSPECTOR GIVES THE CONTRACTOR WRITTEN PERMISSION FOR FLUSHING LONGER LENGTHS OF PIPELINE DUE TO DRAINAGE CONSIDERATIONS. NO MORE THAN 4,000 FEET OF PIPELINE SHALL BE FLUSHED AT ANY ONE TIME, UNDER ANY CIRCUMSTANCES.

NOTE: (1) OPEN FLUSHING IS NOT ALLOWED ON THE PROPOSED PORTSMOUTH 20" WATER MAIN. THE PROPOSED PORTSMOUTH 20" WATER MAIN SHALL BE DISINFECTED BY SWABBING AND INSTALLED CLEAN. (2) THE CONTRACTOR SHALL INSTALL NEW WATER SERVICE LINES ON THE NEW 12" MAIN PRIOR TO FLUSHING.

ALL WATER MAINS SHALL BE FLUSHED WITH POTABLE WATER PRIOR TO DISINFECTION. THE FLUSHING VELOCITY SHALL NOT BE LESS THAN 3.0 FPS. NO SITE FOR FLUSHING SHALL BE USED UNLESS ADEQUATE AND SATISFACTORY DRAINAGE IS PRESENT, AVAILABLE, AND OPERATIONAL. IT SHALL BE NOTED THAT UNDER NO CIRCUMSTANCES WILL PRELIMINARY FLUSHING BE CONSIDERED A SUBSTITUTE FOR PREVENTATIVE MEASURES TAKEN BEFORE AND DURING WATER MAIN CONSTRUCTION TO MINIMIZE CONTAMINATION.

ACCEPTABLE DISINFECTING SOLUTIONS SHALL INCLUDE CHLORINE IN LIQUID FORM, IN CALCIUM HYPOCHLORITE GRANULES OR IN SODIUM HYPOCHLORITE SOLUTIONS. ALL HYPOCHLORITE SHALL CONFORM TO AWWA B300, LATEST REVISION. THE CHLORINE CONCENTRATION IN THE NEWLY INSTALLED MAIN SHALL BE INTRODUCED AT A MINIMUM 50 MG/L AVAILABLE CHLORINE. THE CHLORINATED WATER SHALL BE RETAINED IN THE MAIN FOR AT LEAST 24 HOURS DURING WHICH TIME ALL VALVES AND APPURTENANCES IN THE SECTION TREATED SHALL BE OPERATED IN ORDER TO DISINFECT THE APPURTENANCES. AFTER THE RETENTION PERIOD, ALL OF THE CHLORINATING AGENTS SHALL BE THOROUGHLY FLUSHED FROM THE SYSTEM UNTIL THE REPLACEMENT WATER SHALL, UPON TESTING, BE PROVEN BOTH BACTERIOLOGICALLY AND CHEMICALLY SATISFACTORY TO THE INSPECTOR, THE STATE BOARD OF HEALTH, AND OTHER COGNIZANT PUBLIC HEALTH AGENCIES. THE FLUSHING SHALL BE CONDUCTED IN THE PRESENCE OF AND ONLY WITH THE APPROVAL OF THE OWNER.

AFTER FINAL FLUSHING AND BEFORE THE WATER MAIN IS PLACED IN SERVICE, THE CONTRACTOR SHALL COLLECT SAMPLES AND HAVE THE SAMPLES TESTED FOR BACTERIOLOGICAL QUALITY BY A STATE HEALTH DEPARTMENT APPROVED LABORATORY. SAMPLES TAKEN FROM CITY OF SUFFOLK FACILITIES SHALL BE TAKEN TO THE CITY OF SUFFOLK LABORATORY FOR TESTING PURPOSES. BACTERIOLOGICAL TESTING SHALL BE IN ACCORDANCE WITH VIRGINIA DEPARTMENT OF HEALTH'S WATERWORKS REGULATIONS, NO. 12 VAC 5-590-800-DISINFECTION. AT LEAST TWO CONSECUTIVE SATISFACTORY BACTERIOLOGICAL SAMPLES SHALL BE TAKEN FROM SECTIONS NOT EXCEEDING 2,000 FEET IN LENGTH AT 24-HOUR INTERVALS. CHLORINE RESIDUALS MEASUREMENTS SHALL BE TAKEN AND RECORDED AT THE TIME EACH SAMPLE IS COLLECTED.

IF THE INITIAL DISINFECTION PROCEDURE PRODUCES POSITIVE RESULTS FOR COLIFORM, THE MAIN SHALL BE RE-FLUSHED AND THE SAMPLING PROCEDURE REPEATED. IF THESE SAMPLES ARE POSITIVE FOR COLIFORM, THEN THE MAIN SHALL BE RE-CHLORINATED AND THE SAMPLING PROCEDURE REPEATED.

THE DISINFECTION AND TESTING PROCEDURE SHALL BE CARRIED OUT BY THE CONTRACTOR UNDER THE SUPERVISION OF THE INSPECTOR. WATER MAINS SHALL BE PLACED IN SERVICE ONLY AFTER FINAL APPROVAL HAS BEEN ISSUED BY THE OWNER CONTINGENT UPON TEST RESULTS. BEFORE THE INSPECTOR SHALL WITNESS THE STERILIZATION, HE SHALL ENSURE THAT THE CONTRACTOR HAS TAKEN ADEQUATE MEASURES TO PROTECT THE PUBLIC FROM THE HAZARDS POSTED BY THE ESCAPE OF CHLORINE IF LIQUID CHLORINE OR CHLORINE GAS IS USED. AT A MINIMUM, THE CONTRACTOR SHALL HAVE ON HAND ONE (1) CHLORINE INSTITUTE APPROVED MASK AND REPAIR KIT FOR THE CHLORINE GAS CYLINDER BEING USED.

20. TESTING OF WATER MAINS

- A. THE CONTRACTOR SHALL NOTIFY THE OWNER 48 HOURS PRIOR TO THE PRESSURE TEST DATE. WATER FOR THE TEST MAY BE OBTAINED FROM THE EXISTING SYSTEM, WITH PRIOR APPROVAL FROM THE OWNER.
 - B. NEW WATER MAINS SHALL BE PRESSURE TESTED IN ACCORDANCE WITH AWWA C600, LATEST REVISION EXCEPT AS MODIFIED HEREIN. WATER MAINS SHALL BE FILLED WITH CLEAN WATER AND SUBJECTED TO A HYDROSTATIC PRESSURE TEST OF 1.5 TIMES THE EXPECTED WORKING PRESSURE OR 150 PSI, WHICHEVER IS GREATER, MEASURED AT THE HIGHEST POINT ALONG THE TEST SECTION. THE PRESSURE TEST SHALL BE OF AT LEAST A TWO HOUR DURATION AND ANY DAMAGED OR DEFECTIVE PIPE, FITTINGS, VALVES, OR HYDRANTS THAT ARE DISCOVERED FOLLOWING THE PRESSURE TEST SHALL BE REPLACED BY THE CONTRACTOR. THE CONTRACTOR SHALL FURNISH ALL NECESSARY EQUIPMENT, MATERIALS, TEST PLUGS, AND LABOR FOR MAKING THE TESTS AS SPECIFIED. BEFORE APPLYING THE SPECIFIED TEST PRESSURE, AIR SHALL BE EXPULSED COMPLETELY FROM THE PIPE, VALVES, AND HYDRANTS. HYDRANTS SHALL BE TESTED WITH THE MAIN LINE.
 - C. THE CONTRACTOR SHALL TEST THE LINE PRIOR TO CONTACTING THE OWNER FOR THE FORMAL PRESSURE TEST.
 - D. TESTING SHALL BE PERFORMED ON EACH SECTION OF PIPE BETWEEN MAIN LINE VALVES.
 - E. WATER FOR PRESSURE TEST SHALL BE OBTAINED THROUGH A FULLY VALVED MANIFOLD WITH AN APPROVED BACKFLOW PREVENTER.
 - F. THE CONTRACTOR SHALL FURNISH ALL PUMPS, FITTINGS, AND GAUGES AS NECESSARY TO FILL THE LINE WITH POTABLE WATER, DISPEL AIR FROM THE SYSTEM, AND PRESSURIZE THE PIPELINE FOR THE TESTS.
 - G. THE OWNER RESERVES THE RIGHT TO TEST GAUGES TO DETERMINE THEIR ACCURACY.
 - H. THE CONTRACTOR SHALL COORDINATE ARRANGEMENTS FOR WATER TO BE USED FOR THE PRESSURE TESTING WITH THE OWNER.
 - I. THE TEST PRESSURE SHALL NOT VARY BY MORE THAN +/- 5 PSI FOR THE DURATION OF THE TEST.
 - J. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TEMPORARY RESTRAINT AND SUPPORT DURING TESTING AT NO ADDITIONAL COST TO THE PROJECT.
 - K. THE LEAKAGE TEST SHALL BE CONDUCTED CONCURRENTLY WITH THE PRESSURE TEST. NO PIPE INSTALLATIONS WILL BE ACCEPTED IF ANY LEAKAGE SHOWS AT ANY JOINT AND THE CONDITION MUST BE CORRECTED AND ANOTHER TEST MADE.
21. CONTRACTOR SHALL FURNISH EIGHT COPIES OF ALL SHOP DRAWINGS TO THE ENGINEER PRIOR TO CONSTRUCTION AND/OR INSTALLATION OF CITY OF SUFFOLK RELATED ITEMS. ANY ITEMS INSTALLED PRIOR TO APPROVAL OF SHOP DRAWINGS ARE DONE AT THE CONTRACTOR'S RISK AND MAY BE SUBJECT TO REMOVAL AND CORRECT INSTALLATION AT THE CONTRACTOR'S EXPENSE.
22. SUBMITTALS:
- A. SUBMIT SHOP DRAWINGS (8 COMPLETE SETS) OF THE FOLLOWING, IN ADDITION TO SUBMITTALS REQUIRED BY OTHER SECTIONS OF THE CONTRACT DOCUMENTS:

| PIPE | METHOD OF JOINT RESTRAINT |
|-------------------|--------------------------------------|
| SOLID SLEEVES | TRANSITION COUPLINGS |
| VALVES | METHOD OF CONNECTION TO EXIST. MAINS |
| VALVE BOXES | SEQUENCE OF CONSTRUCTION |
| FITTINGS | DISSIMILAR MATERIAL PIPE JOINTS |
| GASKETS | MANHOLE CONNECTION |
| RESTRAINED JOINTS | MANHOLES |
| RETAINER GLANDS | MANHOLE FRAMES & COVER |
| FIRE HYDRANTS | MANHOLE STEPS |
| WATER METERS | |
| METER BOXES | |
23. ALL ITEMS OF MATERIAL, LABOR, SUPPLIES OR EQUIPMENT THAT ARE NOT SPECIFICALLY LISTED AS A PAY ITEM, BUT WHICH ARE REQUIRED TO COMPLETE THE WORK AS SHOWN ON THE DRAWINGS AND AS DESCRIBED IN THE SPECIFICATIONS, ARE CONSIDERED SUBSIDIARY OBLIGATIONS OF THE CONTRACTOR. NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR THEM.
24. CONTRACTOR TO PROTECT AND SUPPORT, AS NECESSARY, ALL EXISTING WATERLINES EITHER CROSSING OR IN CLOSE PROXIMITY TO PROPOSED CONSTRUCTION ACTIVITY. CONTRACTOR SHALL SUBMIT UTILITY SUPPORT PLAN FOR APPROVAL BY ENGINEER.

OWNER: CITY OF SUFFOLK
POC: SHERRY EARLEY, PE
442 W. WASHINGTON ST.
P.O. BOX 1858
SUFFOLK, VA 23439
(757) 514-7703

ENGINEER: CLARK NEXSEN
POC: WES PARKER, PE
4525 MAIN ST., STE. 1400
VIRGINIA BEACH, VA 23462
(757) 455-5800



NOT FOR
CONSTRUCTION
90%
SUBMITTAL

9-30-2016

GODWIN BOULEVARD AND KINGS HIGHWAY
INTERSECTION IMPROVEMENTS
CITY OF SUFFOLK, VA

CN NO: 6106
DATE: SEPTEMBER 30, 2016
DESIGN: SAT
DRAWN: WSW
REVIEW: DAB

REVISIONS
No. Date Description By

UTILITY GENERAL
NOTES

CU-002

SHEET 17 OF 19

SUGGESTED GENERAL SEQUENCE OF CONSTRUCTION:

EXECUTE THE FOLLOWING INSTALLATIONS IN THE SEQUENCE INDICATED. PROCEDURE FOR ACCOMPLISHING EACH INSTALLATION SHALL BE THE CONTRACTOR'S RESPONSIBILITY. ALL MATERIAL, EQUIPMENT, LABOR AND APPURTENANCES (INCLUDING TEMPORARY PLUGS, COUPLINGS, ETC.) REQUIRED TO ACCOMPLISH INSTALLATIONS IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION SHALL BE INCLUDED IN THE BID COST FOR THE ASSOCIATED PAY ITEM. AN ALTERNATE SEQUENCE MAY BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE OWNER FOR APPROVAL. THE ENTIRE LENGTH OF MAIN LINE UTILITY SHALL BE CONSTRUCTED, TESTED, AND DISINFECTED AS REQUIRED BY SPECIFICATIONS PRIOR TO CONNECTION WITHOUT INTERRUPTION TO ANY EXISTING SERVICE. CONNECTION PIPING SHALL BE TESTED AND DISINFECTED AS REQUIRED BY THE SPECIFICATIONS.

LANE CLOSURES AND STOPPAGES OF TRAFFIC SHALL BE IN ACCORDANCE WITH MAINTENANCE OF TRAFFIC SHEET AND SEQUENCE OF CONSTRUCTION SHEETS.

RESTRAINT OF ALL EXISTING PIPE SHALL BE PERFORMED TO THE EXTENT POSSIBLE PRIOR TO ANY OUTAGE OF UTILITY SERVICE.

THE DEFINITION OF TERMS USED IN THE SEQUENCE OF CONSTRUCTION ARE AS FOLLOWS:

SHUTDOWN - SHUTDOWN OF EXISTING WATER FACILITIES SHALL BE IN ACCORDANCE WITH GENERAL NOTES AND LIMITED TO THE HOURS INDICATED BELOW, EXCLUSIVE OF CITY HOLIDAYS AND WEEKENDS. UNLESS INDICATED OTHERWISE, SHUTDOWNS SHALL BE PERMITTED WITHIN THE FOLLOWING SPECIFIED TIME FRAMES.

SUFFOLK WATER MAINS: 11:00 P.M. TO 5:00 A.M.
(MONDAY THROUGH THURSDAY NIGHTS).

INSTALL - ALL EFFORTS REQUIRED TO EXCAVATE, ASSEMBLE AND PLACE PIPE AND BACKFILL IN ACCORDANCE WITH PLANS AND SPECIFICATIONS. ALL INSTALLATIONS SHALL BE TESTED, CHLORINATED AND/OR DISINFECTED IN ACCORDANCE WITH THE SPECIFICATIONS AND AS STATED ABOVE.

CONNECTIONS - PIPE ASSEMBLIES, FITTINGS, VALVES, AND PERMANENT COUPLINGS AS INDICATED ON THE PLANS OR AS REQUIRED TO ACHIEVE SEQUENCE OF CONSTRUCTION AT LOCATIONS WHERE PROPOSED WORK MEETS EXISTING FACILITIES.

ACTIVATE - UPON COMPLETION OF INSTALLATION, TESTING AND THE OWNER'S APPROVAL IN ACCORDANCE WITH PLANS AND SPECIFICATIONS, PLACE THE NEW IN AN INACTIVE STATE FOR FUTURE PROJECT.

THE 20" PIPE SHALL BE DRAINED OF ALL WATER AND PUT IN AN INACTIVE STATE UNTIL PUT IN SERVICE BY FUTURE PROJECTS.

SEQUENCE

A. TYPICAL SEQUENCE FOR RELOCATIONS.

1. RESTRAIN EXISTING PIPE TO THE EXTENT POSSIBLE.
2. INSTALL 20" WATER MAIN IN ACCORDANCE TO DRAWINGS TO THE CONNECTION POINT.
3. SHUT DOWN EXISTING UTILITY SERVICE.
4. REMOVE EXISTING WATER MAIN AS REQUIRED TO ACCOMMODATE CONNECTIONS. MAKE CONNECTIONS TO EXISTING UTILITY. ONE SHUT DOWN PERMITTED.
5. ACTIVATE EXISTING UTILITY.
6. TEST AND DISINFECT NEW AND EXISTING WATER MAINS.
7. PLACE NEW 20" WATER MAIN IN AN INACTIVE STATE.

UTILITY MATERIAL NOTES:

NOTE: MATERIAL SPECIFICATIONS FOR WATER ITEMS ARE PROVIDED IN THIS SECTION. ITEMS NOT INDICATED HERE SHALL BE IN ACCORDANCE WITH THE VDOT ROAD AND BRIDGE SPECIFICATIONS. MEASUREMENT AND PAYMENT FOR WATER BID ITEMS SHALL BE IN ACCORDANCE WITH THE VDOT ROAD AND BRIDGE SPECIFICATIONS.

1. DUCTILE IRON WATER MAIN OR OFFSETS OF EXISTING MAINS SHALL CONFORM TO AWWA C150 AND C151. PIPE SHALL BE PRESSURE CLASS 350 FOR PIPE DIAMETERS 16" OR LESS AND SPECIAL THICKNESS CLASS 51 FOR PIPE DIAMETERS GREATER THAN 16" IN ACCORDANCE WITH AWWA C150 TABLE 50.15. FOR BURIAL DEPTHS EXCEEDING THOSE ALLOWED BY THE CLASS, PIPE AND FITTINGS OF SUFFICIENT WALL THICKNESS SHALL BE PROVIDED. PIPE OVER 12" INSIDE DIAMETER SHALL HAVE ONE PIECE OF GAUGED PIPE DELIVERED FOR EACH FITTING. GAUGED PIECES SHALL BE MARKED AS SUCH ON THE PIPE AND SHALL BE ACCOMPANIED BY THE MANUFACTURER'S CERTIFICATION. MANUFACTURER'S CERTIFICATION OF INSPECTION AND TESTING SHALL ACCOMPANY EACH DELIVERY. DUCTILE IRON FITTINGS SHALL CONFORM WITH AWWA C110 OR AWWA C153. COMPACT FITTINGS ARE REQUIRED, AND SHALL HAVE A MINIMUM ACCEPTABLE PRESSURE RATING SHALL OF 350 PSI. ALL FITTINGS SHALL BE MECHANICAL JOINT UNLESS NOTED OTHERWISE. DUCTILE IRON WATER MAIN PIPE SHALL BE AS MANUFACTURED BY:

1. AMERICAN CAST IRON PIPE COMPANY
2. U.S. PIPE AND FOUNDRY COMPANY
3. GRIFFIN PIPE PRODUCTS

A. JOINTS SHALL CONFORM TO AWWA C111 OR C115 AS APPLICABLE. THE MINIMUM ACCEPTABLE PRESSURE RATING FOR ALL JOINTS IS 250 PSI. ALL FLANGES AND GLANDS FOR PIPES SHALL BE MADE OF DUCTILE IRON. UNLESS NOTED OTHERWISE, USE MECHANICAL JOINTS CONFORMING WITH ALL APPLICABLE PROVISIONS OF AWWA C111, OR RESTRAINED JOINT AS SPECIFIED BELOW. WHERE FLANGED JOINT PIPE OR FLANGED FITTINGS ARE REQUIRED FOR CONNECTIONS, VERIFY AND COORDINATE BOLT HOLE DRILLING WITH MANUFACTURER.

MECHANICAL JOINT BOLTS SHALL BE U.S. STANDARD SIZE, HIGH STRENGTH, LOW ALLOY (HSLA) STEEL WITH HEXAGONAL NUTS.

B. DEFLECTION: WHEN IT IS NECESSARY TO DEFLECT PIPELINES TO AVOID OBSTRUCTIONS, THE AMOUNT OF DEFLECTION SHALL NOT EXCEED 50% OF THAT RECOMMENDED BY THE PIPE MANUFACTURER. WHERE NECESSARY TO MAINTAIN THE REQUIRED LINE, SHORT SECTIONS OF PIPE OR FITTINGS SHALL BE PROVIDED. MECHANICAL JOINTS WITH METAL TIE RODS WILL BE PROHIBITED IN AREAS WHERE PIPE IS DEFLECTED.

C. EXTERIOR COATING OF ALL DUCTILE IRON PIPE, JOINTS, AND FITTINGS SHALL BE PROVIDED AS REQUIRED BY AWWA C110, C111, C115, C151, OR C153 AS APPLICABLE. ALL PIPES, JOINTS, AND FITTINGS SHALL BE EXAMINED AFTER LAYING TO DETERMINE IF THE COATING HAS BEEN DAMAGED DURING INSTALLATION. ANY DAMAGED AREAS AND ALL JOINTS SHALL BE COATED WITH A MINIMUM OF 2 MIL OF AN APPROVED BITUMINOUS COATING.

D. INTERIOR LINING FOR WATER MAINS SHALL BE CEMENT MORTAR LINED IN ACCORDANCE WITH AWWA C104 INCLUDING ASPHALTIC SEAL. SUFFOLK FACILITIES SHALL BE SINGLE-THICKNESS CEMENT MORTAR LINED.

E. PIPE RESTRAINING LENGTH SHALL BE AS INDICATED ON THE PLANS. RESTRAINED PIPE SHALL MEET THE FOLLOWING CRITERIA:

1. RESTRAINED JOINT PIPE:
ALL RESTRAINED JOINT PIPE AND FITTINGS SHALL BE RESTRAINED AGAINST THRUST BY USING POSITIVE RESTRAINT SYSTEMS. RESTRAINED JOINT PIPE SHALL BE: U.S. PIPE TR-FLEX, AMERICAN CAST IRON PIPE FLEX-RING, OR GRIFFIN PIPE SNAP-LOK.

2. MECHANICAL JOINT PIPE AND SLIP JOINT PIPE WITH RETAINER GLANDS:

RETAINER GLAND SHALL BE U.L. LISTED AS MANUFACTURED BY: EBBA IRON, INC., SERIES 1100 "MEGALUG", FORD METER BOX COMPANY, INC. SERIES 1400 "UNI-FLANGE", SIGMA "ONE-LOK", OR U.S. PIPE AND FOUNDRY "M.J. GRIPPER". U.S. PIPE AND FOUNDRY "FIELD-LOK" GASKETS WILL BE ALLOWED FOR JOINT RESTRAINT ON STRAIGHT RUNS OF PIPE.

F. BEDDING AND BACKFILL: IN ACCORDANCE WITH THE CITY OF SUFFOLK DETAIL ON SHEET CU-501 UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

G. DUCTILE IRON PIPE FOR WATER MAINS AND SEWER MAINS SHALL BE WRAPPED IN POLYETHYLENE ENCASEMENT. POLYETHYLENE ENCASEMENT SHALL BE CLASS B, SEAMLESS 4 MILS THICK HIGH DENSITY CROSS-LAMINATED FLAT TUBE POLYETHYLENE AND SHALL CONFORM TO ANSI/AWWA C105/A21.5. THE PRICE FOR THE POLYETHYLENE ENCASEMENT SHALL BE CONSIDERED INCIDENTAL TO THE ASSOCIATED WATER MAIN/SEWER MAIN PAY ITEM.

2. VALVE BOX AND VALVE BOX SETTING SHALL BE IN ACCORDANCE WITH THE CITY OF SUFFOLK DETAIL ON SHEET CU-501. VALVE BOX CASTINGS SHALL RECEIVE AN ASPHALTIC COATING.

3. BUTTERFLY VALVES SHALL BE PROVIDED FOR WATER MAIN LARGER THAN 12" AND SHALL BE PRESSURE CLASS 150B IN ACCORDANCE WITH THE LATEST REVISION OF AWWA C504. BUTTERFLY VALVES AND OPERATORS SHALL BE SUITABLE FOR BURIED SERVICE. VALVE SEATS SHALL BE OF SYNTHETIC RUBBER COMPOUND AND TESTED IN ACCORDANCE WITH ASTM D-429. THE VALVE SHALL BE OPERABLE WITH A MAXIMUM INPUT OF 150 FOOT-POUNDS ON THE OPERATING NUT, AND BE ABLE TO WITHSTAND AN OVERLOAD INPUT TORQUE OF 150 FOOT-POUNDS AT FULL OPEN AND FULL CLOSED POSITIONS WITHOUT DAMAGE TO THE OPERATOR NUT. ACTUATOR COMPONENTS SHALL BE DESIGNED TO WITHSTAND, WITHOUT DAMAGE, A RIM PULL OF 200 POUNDS FOR THE HAND WHEEL, AND AN INPUT TORQUE OF 300 FOOT-POUNDS FOR WRENCH NUTS, IN ACCORDANCE WITH AWWA C504. THE DISC SHALL BE CAPABLE OF HOLDING IN ANY INTERMEDIATE POSITION WITHOUT CREEP OR FLUTTER.

BUTTERFLY OPERATORS MAY BE SIDE-MOUNTED, SHALL MEET THE REQUIREMENTS OF AWWA C504, PRESSURE CLASS 150B, SHALL BE CAPABLE OF SEATING AND UNSEATING THE DISCS AGAINST THE FULL DESIGN PRESSURE AND VELOCITY, AND SHALL TRANSMIT SUFFICIENT TORQUE TO THE VALVE TO ACCOMPLISH THIS. BURIED VALVES SHALL CONTAIN PERMANENTLY LUBRICATED OPERATORS. VALVE OPERATORS SHALL BE SUITABLE FOR A MINIMUM OF 10,000 CYCLES OF OPERATION AT ITS RATED TORQUE.

3. (CONTINUED)

1. COATINGS

ALL INTERIOR FERROUS SURFACES OF ALL VALVES SHALL BE COATED IN ACCORDANCE WITH ANSI/AWWA C550 USING A COATING APPROVED BY THE VIRGINIA DEPARTMENT OF HEALTH FOR CONTACT WITH POTABLE WATER AND SHALL NOT CONTAIN LEAD, COAL TAR RESINS, LAMPBLACK, CARBON BLACK OR BITUMINOUS MATERIALS. THE EXTERIOR SURFACES SHALL RECEIVE A FACTORY APPLIED FUSION BONDED EPOXY COATING.

2. VALVE STEM EXTENSIONS

VALVE STEM EXTENSIONS SHALL BE FURNISHED WHEN THE DISTANCE FROM THE OPERATING NUT TO THE TOP OF THE VALVE BOX FRAME IS GREATER THAN 36-INCHES. EXTENSION STEMS SHALL HAVE A 2-INCH SQUARE WRENCH NUT ON THE TOP END AND SHALL BE AT LEAST AS STRONG AS THE VALVE STEM. EXTENSION STEMS SHALL BE IN ACCORDANCE WITH ABOVE.

3. VALVE MARKINGS

VALVE MARKING SHALL BE CAST ON THE BONNET OR BODY OF EACH VALVE AND SHALL SHOW THE MANUFACTURER'S NAME OR MARK, THE YEAR THE VALVE CASTING WAS MADE, THE SIZE OF THE VALVE, AND THE DESIGNATION OF WORKING PRESSURE.

BUTTERFLY VALVES SHALL BE:

1. AMERICAN FLOW CONTROL
2. KENNEDY VALVE COMPANY
3. MUELLER COMPANY

4. FIRE HYDRANTS SHALL BE APPROVED BY THE NATIONAL BOARD OF FIRE UNDERWRITERS, OF THE DRY BARREL TYPE, NON-FLOODING, TRAFFIC MODEL, FROST PROOF, COMPRESSION TYPE CONFORMING TO AWWA C502, LATEST REVISION. THE HYDRANT SHALL HAVE WASTE ORIFICES FOR DRAINING THE HYDRANT WHEN THE VALVE IS CLOSED. THE HYDRANT SHALL BE EQUIPPED WITH A BARREL SAFETY FLANGE AND A VALVE STEM SAFETY COUPLING SO THAT NEITHER THE BARREL NOR THE STEM WILL BREAK IF STRUCK BY A VEHICLE OR OTHER OBJECT. THE HYDRANTS SHALL BE DESIGNED FOR 150 PSI WORKING PRESSURE AND 300 PSI TEST PRESSURE. THE MAIN VALVE SHALL BE REMOVEABLE FROM ABOVE GROUND.

FIRE HYDRANTS SHALL HAVE SIX INCH MECHANICAL JOINT INLET AND MAIN VALVE OPENING OF 4-1/2 INCHES. HYDRANTS SHALL BE EQUIPPED WITH TWO 2-1/2 INCH HOSE CONNECTIONS AND ONE 4-1/2 INCH PUMPER CONNECTION WITH NATIONAL STANDARD THREADS. HOSE NIPPLES SHALL BE BRONZE OR NON-CORROSIVE METAL AND THE NIPPLE CAPS SHALL BE SECURELY CHAINED TO THE BARREL. THE DIRECTION OF OPENING SHALL BE LEFT (COUNTER CLOCKWISE) AND SHALL BE CAST ON THE HEAD OF THE HYDRANT. THE HYDRANT SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER AND TWO FINISH COATS OF A PAINT, ALUMINUM IN COLOR.

FIRE HYDRANT CONNECTIONS SHALL BE IN ACCORDANCE WITH THE DETAIL ON SHEET 10(2).

A. HYDRANT SHALL BE SET UPON A BED OF NO. 57 STONE NOT LESS THAN 8" THICK AND 18" SQUARE. HYDRANT DRAINS SHALL OPEN FREELY INTO THIS STONE BED (CONCRETE BLOCK NOT REQUIRED).

B. HYDRANTS SHALL BE SET WITH THE BOTTOM OF THE PUMPER CONNECTION 18" ABOVE FINISHED GRADE.

FIRE HYDRANTS SHALL BE:

1. AMERICAN FLOW CONTROL MK-73-1
2. MUELLER SUPER CENTURION 200
3. KENNEDY GUARDIAN K-81-D.

5. PIPE TERMINATION AND BLOW OFF SHALL BE IN ACCORDANCE WITH THE CITY OF SUFFOLK PFM LATEST EDITION AND DETAIL ON SHEET CU-501.

6. WATER SERVICE LINES 2" AND SMALLER SHALL BE TYPE "K SOFT" COPPER TUBING, MANUFACTURED IN ACCORDANCE WITH AWWA C800, LATEST REVISION. EXISTING WATER SERVICE LINES TO BE REMOVED SHALL BE TAKEN OUT OF SERVICE BY SHUTTING OFF AND CAPPING THE CORPORATION STOP AT THE WATER MAIN. TAPS SHALL NOT BE MADE WITHIN 12" OF JOINTS.

CORPORATION STOPS SHALL CONFORM TO AWWA C800, LATEST REVISION. HAVE AWWA TAPER THREAD INLET AND COMPRESSION CONNECTION OUTLET. CORPORATION STOPS SHALL BE AS MANUFACTURED BY MUELLER COMPANY, A.Y. MCDONALD COMPANY, OR FORD METER BOX COMPANY.

COPPER SETTERS SHALL HAVE CUT OFF VALVES OF SUFFICIENT SIZE WITH COMPRESSION OR FLARED CONNECTIONS. COPPER SETTERS SHALL BE AS MANUFACTURED BY MUELLER COMPANY, A.Y. MCDONALD COMPANY, OR FORD METER BOX COMPANY. A BACKFLOW PREVENTER SHALL BE PROVIDED ON EACH COPPER SETTER.

WATER METERS SHALL CONFORM TO AWWA C700, LATEST REVISION AND INDICATE WATER CONSUMPTION IN CUBIC FEET. WATER METERS SHALL HAVE STRAIGHT READING DIALS AND SHALL BE COMPLETELY ENCASED, HERMETICALLY SEALED, AND OF A FROST-PROTECTIVE DESIGN. EACH METER SHALL HAVE AN ARROW ON IT TO INDICATE FLOW DIRECTION. WATER METER SHALL BE A 5/8" X 3/4" SENSUS IPERL. ENCODER AND REGISTER SHALL CONFORM TO AWWA C707, LATEST REVISION.

WATER METER BOXES SHALL BE IN ACCORDANCE WITH THE DETAIL ON SHEET CU-501.

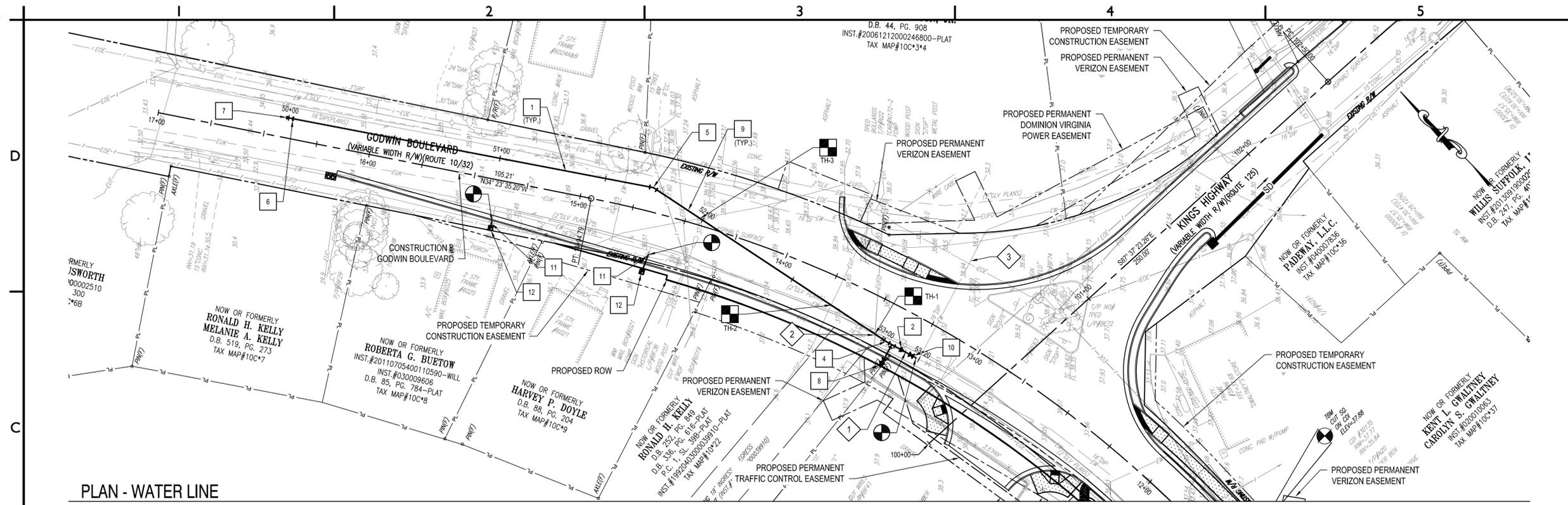
A. WATER METER BOXES SHALL HAVE A PRE-CUT HOLE (1-3/4" DIAMETER) FOR THE TOUCH READ PIT LID METER.

B. THE TOP OF THE METER BOX SHALL EXTEND 1/2" ABOVE FINISHED GRADE.

NOT FOR
CONSTRUCTION
**90%
SUBMITTAL**
9-30-2016

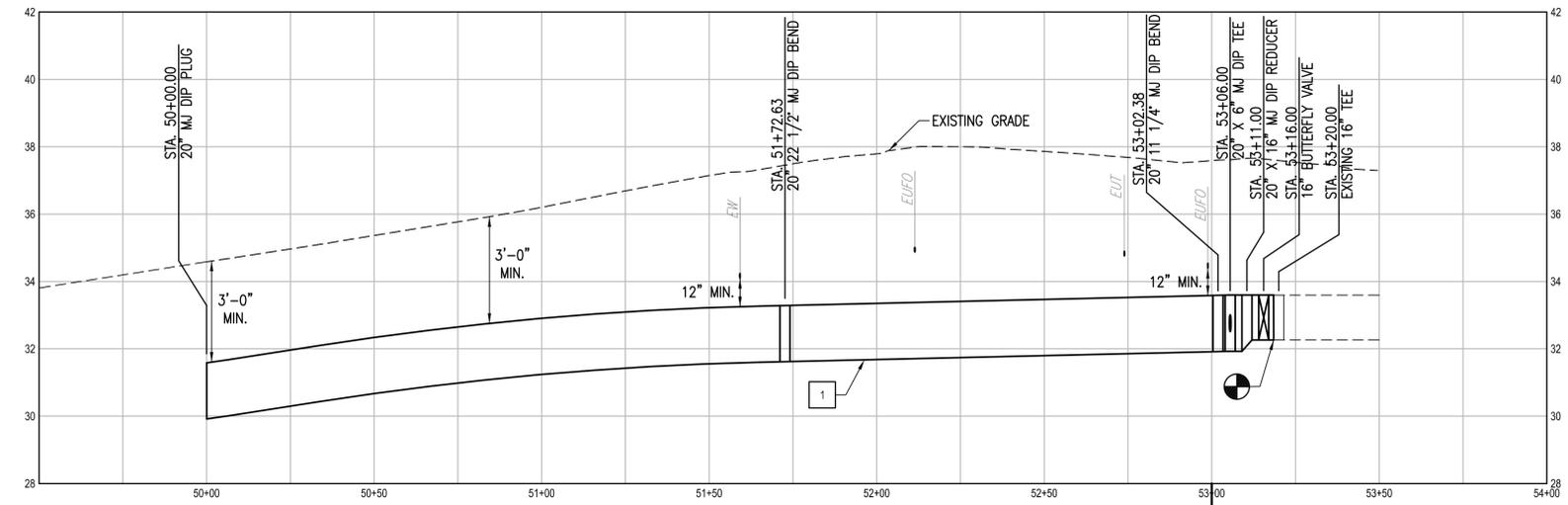
**GODWIN BOULEVARD AND KINGS HIGHWAY
INTERSECTION IMPROVEMENTS**
CITY OF SUFFOLK, VA

CN NO: 6106
DATE: SEPTEMBER 30, 2016
DESIGN: SAT
DRAWN: WSW
REVIEW: DAB
REVISIONS
No. Date Description By



PLAN - WATER LINE

SCALE: 1"=25'



PROFILE - WATER LINE

HORIZONTAL SCALE: 1"=25' VERTICAL SCALE: 1"=2.5'

CONSTRUCTION NOTES

1. 20" MJ DIP
2. 20" X 16" MJ REDUCER
3. NOT USED
4. 20" MJ DIP 11 1/4" BEND
5. 20" MJ DIP 22 1/2" BEND
6. 20" MJ DIP PLUG
7. PIPE TERMINATION BLOW OFF, SEE DETAIL ON SHEET CU-501
8. FIRE HYDRANT ASSEMBLY
9. SEE TRENCH AND PIPE BEDDING DETAIL ON SHEET CU-501
10. 16" MJ BUTTERFLY VALVE WITH VALVE BOX

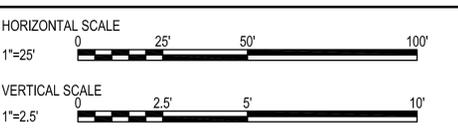
DEMOLITION NOTES

1. REMOVE EXISTING 16" X 8" REDUCER, 8" GATE VALVE AND 8" PIPE FROM 16" TEE TO DEAD END.
2. REMOVE BLOCKING AND/OR THRUST RESTRAINT
3. COORDINATE THE SHUT DOWN OF THE EXISTING 16" PER THE CITY OF SUFFOLK PFM AND GENERAL NOTES ON SHEET CU-001

GENERAL NOTES :

1. THE FULL LENGTH OF NEW PIPING AND FITTINGS FROM THE EXISTING 16" TEE SHALL BE RESTRAINED MECHANICAL JOINT.

GRAPHIC SCALE(S)



UTILITY PLAN

CU-101

SHEET 18 OF 19

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GODWIN BOULEVARD AND KINGS HIGHWAY
INTERSECTION IMPROVEMENTS
CITY OF SUFFOLK, VA

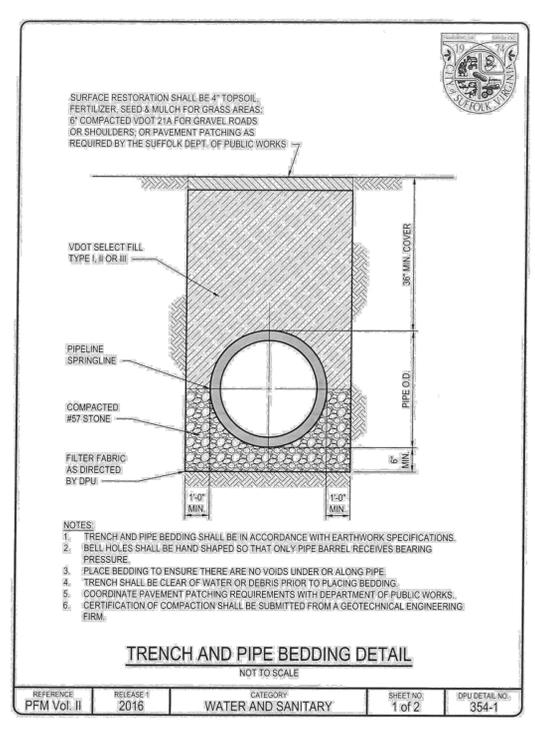
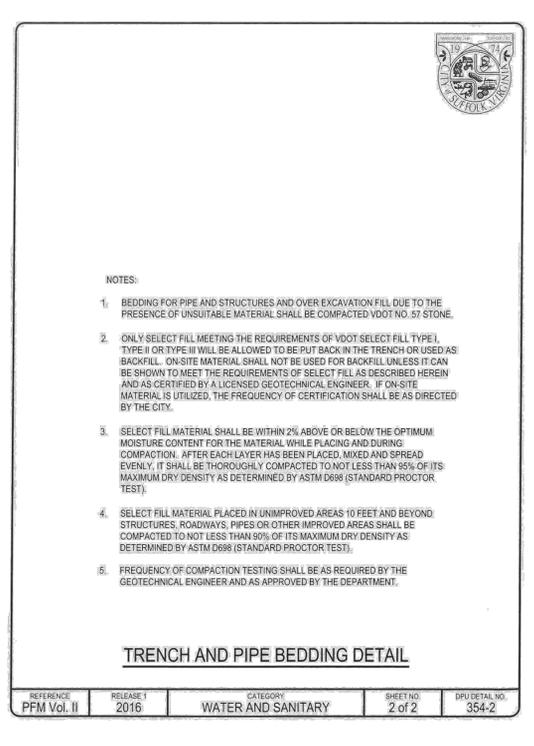
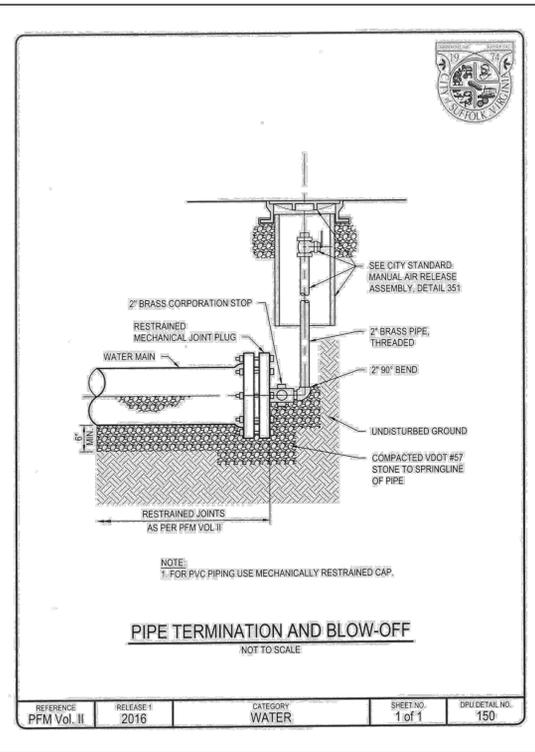
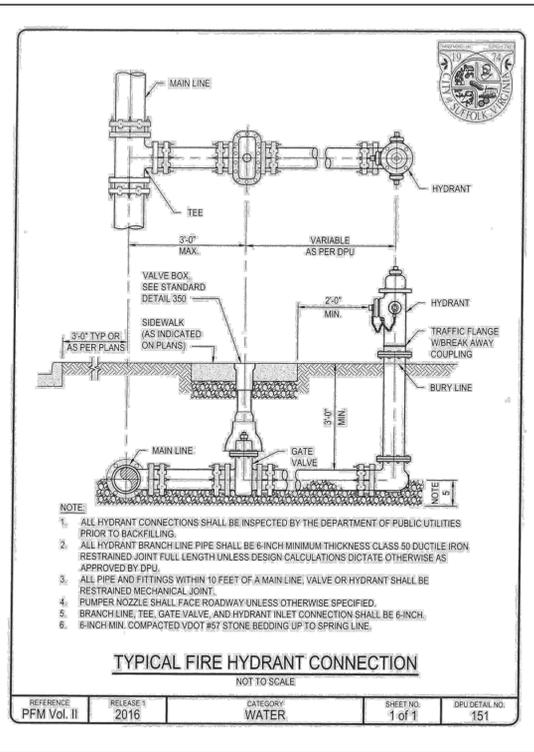
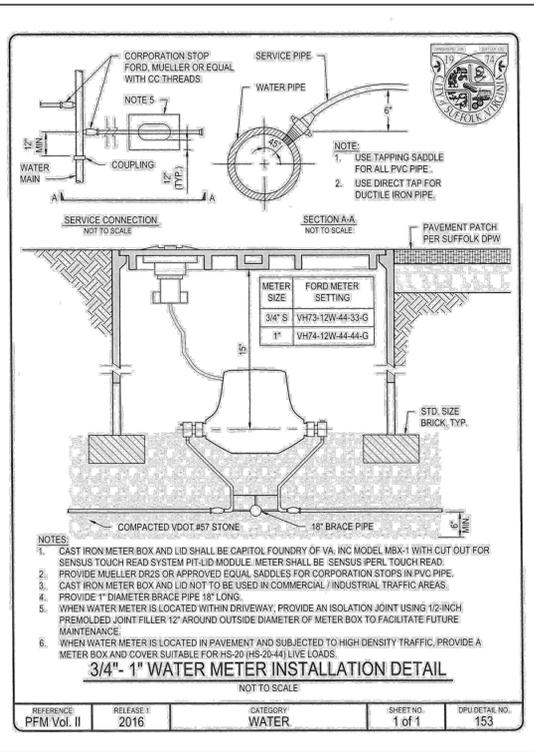
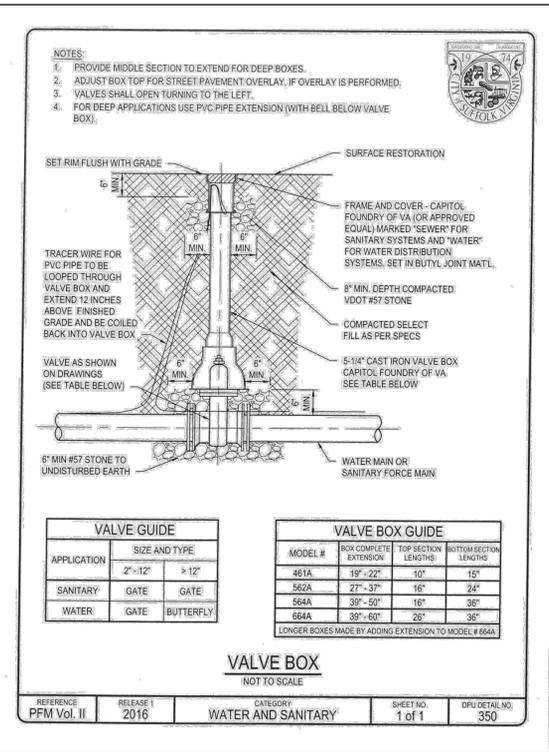
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DATE: SEPTEMBER 30, 2016
DESIGN: SAT
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REVIEW: DAB

REVISIONS
No. Date Description By

UTILITY DETAILS

CU-501

SHEET 19 OF 19



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