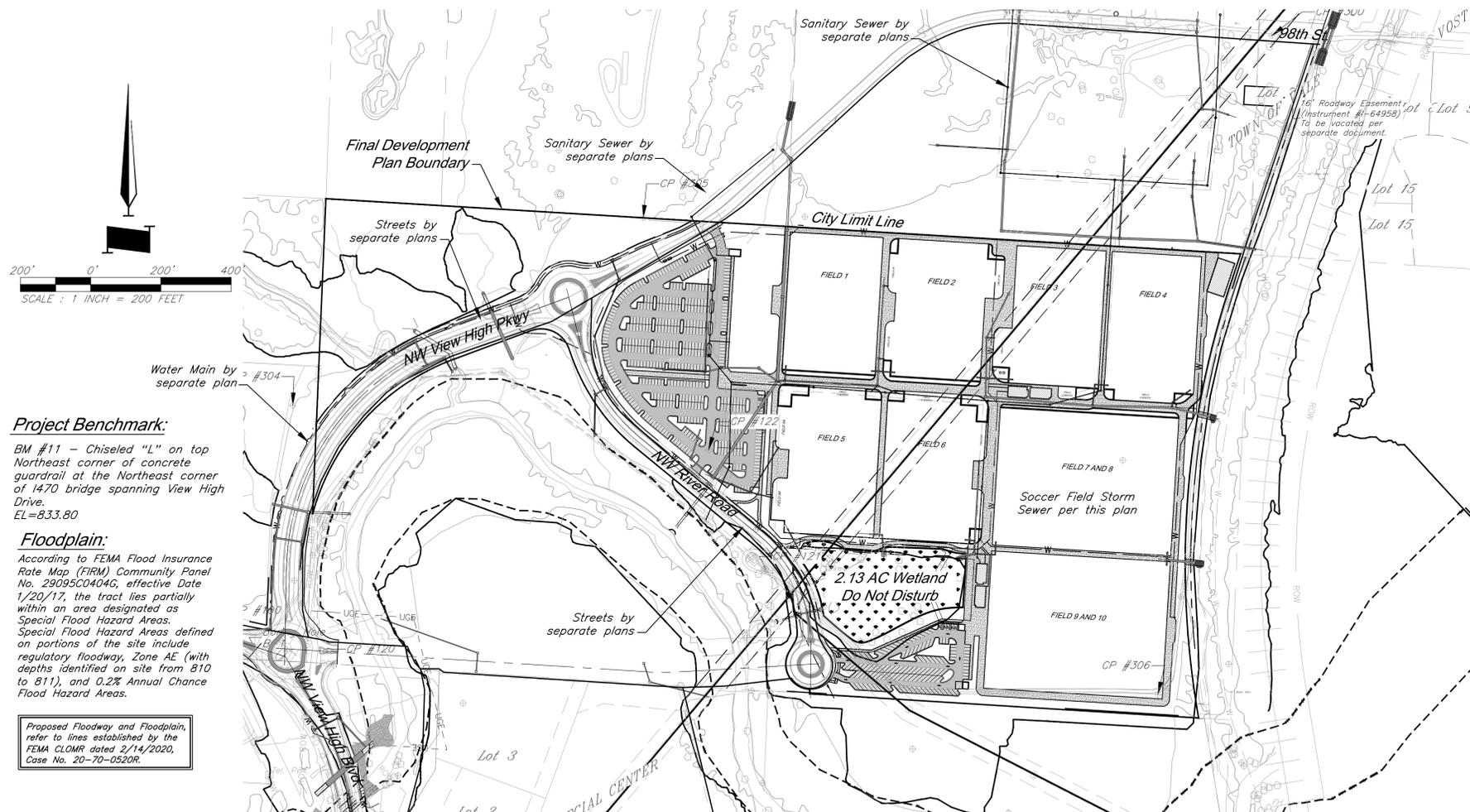


PARAGON STAR SOCCER COMPLEX FIELD STORM SEWER



Project Benchmark:

BM #11 - Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of 1470 bridge spanning View High Drive.
EL=833.80

Floodplain:

According to FEMA Flood Insurance Rate Map (FIRM) Community Panel No. 29095C0404G, effective Date 1/20/17, the tract lies partially within an area designated as Special Flood Hazard Areas. Special Flood Hazard Areas defined on portions of the site include regulatory floodway, Zone AE (with depths identified on site from 810 to 811), and 0.2% Annual Chance Flood Hazard Areas.

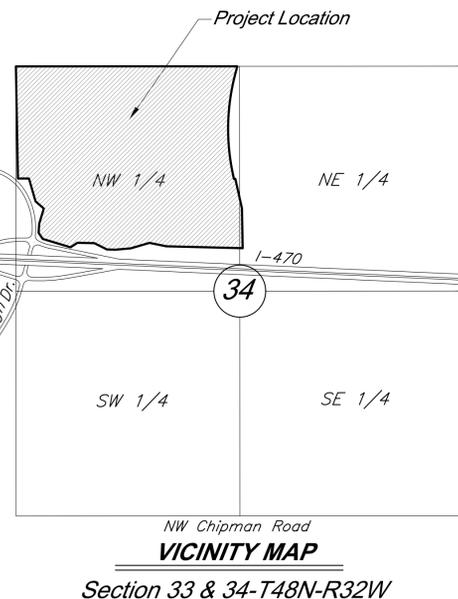
Proposed Floodway and Floodplain, refer to lines established by the FEMA CLOMR dated 2/14/2020, Case No. 20-70-0520R.

Boundary Description:

All that part of the Northwest Quarter of Section 34, Township 48 North, Range 32 West, of the 5th P.M., and all of GRAHAM COMMERCIAL CENTER, a subdivision in the in the City of Lee's Summit, Jackson County, Missouri, being more particularly described as follows:

BEGINNING at the Northwest corner of said Northwest Quarter of Section 34; thence South 86°33'45" East, along the North line of said Northwest Quarter, a distance of 2611.91 feet, to a point on the Westerly Right-of-Way line of Union Pacific Railroad, as now established; thence South 18°46'13" West, departing said North line, along said Westerly Right-of-Way line, a distance of 76.95 feet, to a point of curvature; thence Southwesterly and Southeasterly, continuing along said Westerly Right-of-Way line, along a curve to the left, having a radius of 2508.01 feet, and a central angle of 28°06'45", a distance of 1230.57 feet, to a point of tangency; thence South 09°20'32" East, continuing along said Westerly Right-of-Way line, a distance of 30.31 feet, to a point on the South line of the North half of said Northwest Quarter; thence South 86°26'21" East, continuing along said Westerly Right-of-Way line, and along said South line of the North half of the Northwest Quarter, a distance of 16.41 feet; thence South 09°20'32" East, departing said South line of the North half of the Northwest Quarter, continuing along said Westerly Right-of-Way line, a distance of 354.98 feet, to a point on the East line of said Northwest Quarter; thence South 02°29'17" West, continuing along said Westerly Right-of-Way line, and along said East line of the Northwest Quarter, a distance of 468.48 feet, to a point on the North Right-of-Way line of Interstate 470, as now established; thence North 85°05'37" West, departing said Westerly Right-of-Way line, along said North Right-of-Way line of Interstate 470, a distance of 899.87 feet; thence North 75°10'03" West, continuing along said North Right-of-Way line, a distance of 203.04 feet; thence South 77°15'22" West, continuing along said North Right-of-Way line, a distance of 228.93 feet, to a point on the East line of the Southwest Quarter of said Northwest Quarter, said point also being the Southeast corner of said GRAHAM COMMERCIAL CENTER; thence continuing South 77°15'22" West, continuing along said North Right-of-Way line, and along the South line of said subdivision, a distance of 1.94 feet; thence South 88°33'58" West, continuing along said North Right-of-Way line, and along said South line of said subdivision, a distance of 181.11 feet; thence North 85°01'31" West, continuing along said North Right-of-Way line, and said South line of said subdivision, a distance of 100.18 feet; thence North 60°06'43" West, continuing along said North Right-of-Way line, and said South line of said subdivision, a distance of 165.44 feet; thence North 85°08'16" West, continuing along said North Right-of-Way line, and said South line of said subdivision, a distance of 199.96 feet; thence South 60°28'02" West, continuing along said North Right-of-Way line, and said South line of said subdivision, a distance of 97.23 feet; thence North 69°50'05" West, continuing along said North Right-of-Way line, and said South line of said subdivision, a distance of 342.03 feet, to the Southwest corner of said subdivision; thence North 30°28'52" West, continuing along said North Right-of-Way line, and along the West line of said subdivision, a distance of 87.88 feet; thence North 07°21'08" East, continuing along said North Right-of-Way line and it's transition to the East Right-of-Way line of View High Drive, as now established, and said West line of said subdivision, a distance of 106.53 feet; thence North 20°25'39" East, departing said West line of said subdivision, continuing along said East Right-of-Way line of View High Drive, a distance of 185.39 feet; thence North 45°30'34" West, continuing along said East Right-of-Way line, a distance of 129.40 feet; thence North 12°40'32" West, continuing along said East Right-of-Way line, a distance of 278.96 feet, to a point on said South line of the North half of the Northwest Quarter; thence North 86°26'21" West, continuing along said East Right-of-Way line, and along said South line of the North half of the Northwest Quarter, a distance of 130.00 feet, to the Southwest corner of said North half of the Northwest Quarter; thence North 02°25'47" East, along the West line of said Northwest Quarter, a distance of 1316.45 feet, to the POINT OF BEGINNING, containing 5,217,462.56 square feet or 119.78 acres, more or less.

See Sheet C-101 for dimensioned boundary.



INDEX OF SHEETS

| Sht. No. | Description |
|----------|-----------------------|
| 1 | General Layout |
| 2-10 | Utility Plan |
| 11-15 | Storm Sewer Profiles |
| 16-19 | Drainage Map |
| 20 | Drainage Calculations |
| 21-26 | Storm Sewer Details |

General Notes:

- All Construction shall conform to the City of Lee's Summit Technical Specifications in effect at the time of the City's approval date shown on the approved plans and incorporated herein by reference.
- All traffic control shall be the responsibility of the Contractor and shall be in conformance with the Manual of Uniform Traffic Control Devices (MUTCD).
- Property Corners and/or Section corners disturbed or damaged by construction activities shall be reset by a Registered Land Surveyor licensed in the state of Missouri, at the Contractor's expense.
- The Contractor shall be responsible for the restoration of the Right-of-Way and for damaged improvements such as curbs, driveways, sidewalks, street light and traffic signal junction boxes, traffic signal equipment, irrigation systems, etc. Damaged improvements shall be repaired in conformance with the latest City standards and to the City's satisfaction.
- All work shall be confined within easements and/or construction limits as shown on the plans.
- The Contractor shall, prior to the commencement of work, investigate surface and subsurface conditions to be encountered across the site and notify the Engineer if any discrepancies or changed conditions are noted.
- All trash and debris identified on site shall be properly handled and disposed of in accordance with state of Missouri regulations.
- All measurements on these plans are horizontal distances, not slope distances.
- This project will include numerous activities occurring on site including storm sewer, sanitary sewer, grading, erosion control, etc. Contractor shall coordinate his work with other contractors on site.
- Initial construction staking will be performed by GBA - Refer to Bid Documents.
- All concrete shall be KCMMB 4,000 psi.
- Oil / Gas Wells are not present on site per Missouri Department of Natural Resources.

Permitting:

- Contractor is responsible for obtaining all required permits, paying all fees, and for otherwise complying with all applicable regulations governing the work.
- No work shall be completed within the existing floodway until the CLOMR has been issued.
- The U.S. Corps of Engineers Section 404 permit has been issued for this project. All work shall adhere to the terms and conditions of this permit, including the preservation of 2.13 Acres of the existing wetland.
- All work within KCMO city limits shall adhere to KCMO Site disturbance requirements.

Erosion Control:

- The Contractor is responsible for providing erosion and sediment control BMP's to prevent sediment from reaching paved areas, storm sewer systems, drainage courses, and adjacent properties. In the event the prevention measures are not effective, the contractor shall remove any debris, silt, or mud and restore the Right-of-Way, or adjacent properties to original or better condition.
- Contractor shall ensure that all construction shall conform to the requirements of the Stormwater Pollution Prevention Plan (SWPPP) a copy of which shall be maintained and updated on site by the Contractor.
- The Contractor shall sod all disturbed areas within the Public Street Right-of-Way unless otherwise noted in the plans.
- No trees shall be damaged or removed without prior authorization from owner unless otherwise shown on this plan.

Earthwork:

- Slopes shall be constructed to a maximum slope of 3:1 (Horiz:Vert) unless specifically noted otherwise in the referenced Geotechnical reports.
- Refer to "Geotechnical Engineering Report - Paragon Star Roadways and Borrow Site" Dated December 8, 2016 along with Addendum #1 dated 1/4/17, and "Geotechnical Engineering Report - Soccer Fields" Dated July 27, 2016 prepared by Terracon Consultants, Inc. for grading recommendations and boring logs. All earthwork shall conform to the recommendations of the Reports.
- Unless otherwise noted, all spot elevations and contours are shown to "finish" grade surface.
- All temporary slopes and excavations should conform to Occupational Safety and Health Administration (OSHA) standards for the Construction Industry (29 CFR part 1026, subpart P).
- Earthwork for this phase of development is intended to balance. Contractor to cut only enough fill material from the borrow source at the north end of the project as required to accomplish the fills shown on this plan set.
- All Permanent seeded shall be dressed with 12" topsoil and permanent seed. All other disturbed areas shall be seeded with the temporary seed mix.
- Earthwork quantities shown on the plans assume 15% shrinkage for all fill material. The Contractor shall perform the fill to achieve the grades shown on the drawings. The determination of the actual adjustment of fill required due to shrink/swell of various materials shall be the responsibility of the Contractor.

Utility:

- All Manholes, Catch Basins, Utility Valves, Meter Pits, and other utility equipment shall be adjusted or rebuilt to grade as required.
- Prior to beginning work, the Contractor shall notify all utility companies who have facilities in the vicinity of the project area of the work to be performed.

Utility Contacts

| | | | |
|-----------------|--|------------------|---|
| Sanitary Sewers | Mr. Jeff Thorn, PE City of Lee's Summit Water Utilities 1200 SE Hamblen Road Lee's Summit, MO 64063 (816) 969-1922 email: jeff.thorn@cityofLS.net | Gas | Mr. Donnie Richards Missouri Gas Energy 7500 E 35th Terrace Kansas City, MO 64129 (816) 472-9464 Fax (816) 472-3488 email: donnie.richards@sug.com |
| Water | Mr. Jeff Shook Little Blue Valley Sewer District 21101 East 78 Highway Independence, MO 64057 (816) 285-1522 email: jshook@lbvsd.net | Cable Television | Mr. Greg Thomas Time Warner Cable 8221 W. 119th Street Overland Park, KS 66213 (913) 643-1950 email: greg.thomas@twcable.com |
| | Kansas City, MO Public Works Department (816) 513-2600 | Telephone | Ms. Glenda Charles AT&T 1425 Oak Street Kansas City, MO 64106 (816) 365-1669 Fax (816) 275-1109 email: gc6954@att.com |
| | Kansas City, MO Water Services Department (816) 513-2215 | Electric Service | Mr. Nathan Michael Kansas City Power & Light P.O. Box 418679 Kansas City, MO 64141 (816) 220-5210 Fax (816) 245-3623 email: Nathan.Michael@kcpl.com |

Missouri One Call System 1-800-344-7483 (DIG-RITE)

GBA
1981 Renner Boulevard
Lenexa, KS 66219
913.492.0400
www.gbasteam.com
MO Certificate of Authority # 000133

LANDS Studio, LLC
317 SE Main
Lee's Summit, MO 64063
www.landsstudio.com
MO Certificate of Authority # 2008001860

Hoerr Schaudt Landscape Architects
2100 Centra Street, Suite 01C
Kansas City, MO 64108
816.510.0438
www.hoerschaudt.com
MO Certificate of Authority # 2019004088

HENDERSON ENGINEERS, Inc.
8345 Lenexa Drive
Lenexa, KS 66214
913.742.5000
www.he-eng.com
Missouri Certificate of Authority # 000556

FINKLE + WILLIAMS Architecture
7037 College Boulevard, Suite 415
Overland Park, KS 66211
913.498.1550
www.fwilliams.com
Missouri Certificate of Authority # F00453304

PROJECT:

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Soccer Complex Storm Sewer
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Field Storm Sewer Plans

ISSUE:

10/17/19 City Comments
3/13/20 City Comments
4/28/20 City Comments
5/22/20 City Comments

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General Layout

JOB NO: 1197

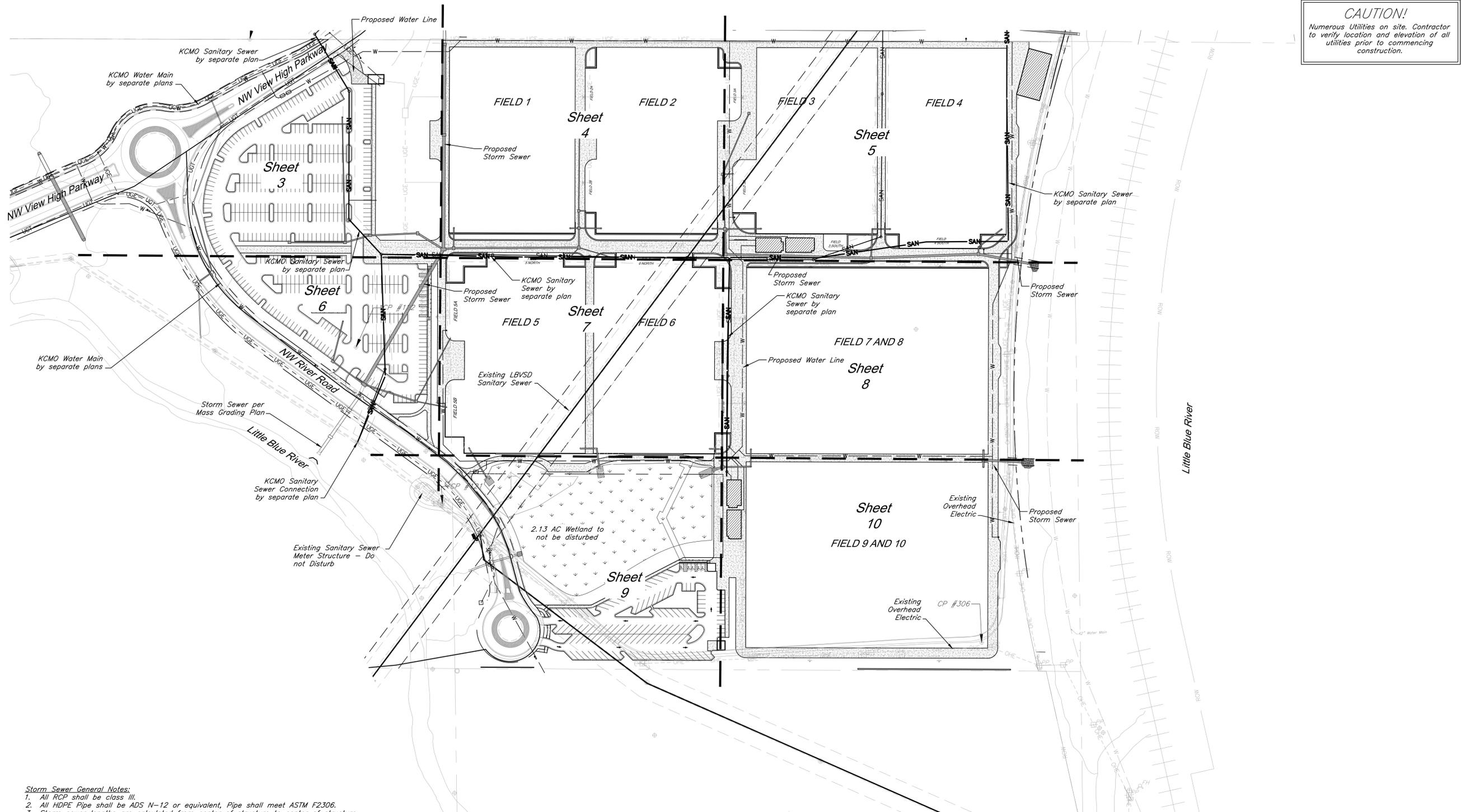
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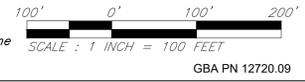


CAUTION!
 Numerous Utilities on site. Contractor to verify location and elevation of all utilities prior to commencing construction.

- Storm Sewer General Notes:**
1. All RCP shall be class III.
 2. All HDPE Pipe shall be ADS N-12 or equivalent, Pipe shall meet ASTM F2306.
 3. Storm sewer lengths are calculated from center of structure to center of structure.
 4. All pipe connections to Inlets shall occur at center of structure wall unless specifically noted otherwise.
 5. All work shall conform to City of Lee's Summit, MO standards.
 6. Precast structures shall be constructed with KCMMB 4,000 psi concrete. Shop drawings shall be submitted to the Engineer for review prior to casting.
 7. All in grade inlets shall match adjacent slope.
 8. Drainage across the project site during construction shall be the Contractor's responsibility. Surface drainage shall be controlled to reduce or prevent the flow of surface water onto adjacent grounds. Contractor shall control downstream erosion and silting during construction. Flexibility is given to the Contractor to make minor grading revisions along roads or between building pads to improve drainage during construction, with prior approval of the engineer.
 9. See Sheets 21-26 for construction details.

Utility Legend

| | |
|---|--|
| <ul style="list-style-type: none"> ⊠ CATV Ped. Cable TV Pedestal ⊠ P.P. Power Pole ⊠ Guy Anchor ⊠ EMH Electrical Manhole ⊠ ET Electrical Transformer ⊠ G.M. Gas Meter ⊠ Curb Inlet ⊠ SSMH Sanitary Sewer Manhole ⊠ S.S. Sanitary Cleanout ⊠ L.P. Light Pole ⊠ B.H. Boring Hole ⊠ Sign ⊠ Tel. Ped. Telephone Pedestal ⊠ T.S. Traffic Signal Post ⊠ FMH Traffic Manhole ⊠ F.H. Fire Hydrant | <ul style="list-style-type: none"> ⊠ W.M. Water Meter FO Fiber Optic Line FP Fire Protection Line G Gas Line OHE Over Head Electric OHT Over Head Telephone OHTV Over Head Cable TV P Property Line ROW Right-of-Way Line SAN Existing Sanitary Sewer Line UGE Existing Underground Electric UGT Existing Underground Telephone UGTV Existing Underground Cable TV W Existing Water Line Proposed Storm Sewer Existing Storm Sewer Proposed Sanitary Sewer Line |
|---|--|



GBA
 1981 Renner Boulevard
 Lenexa, KS 66219
 913.492.0400
 www.gbasteam.com
 MO Certificate of Authority # 000133

LANDS Studio, LLC
 317 SE Main
 Lee's Summit, MO 64063
 www.landsstudio.com
 MO Certificate of Authority # 2008001860

Hoersch Landscape Architects
 2100 Central Street, Suite 01C
 Kansas City, MO 64108
 816.510.0438
 www.hoerschlandscape.com
 MO Certificate of Authority # 201904088

HENDERSON ENGINEERS, Inc.
 8345 Lenexa Drive
 Lenexa, KS 66214
 913.742.5000
 www.he-eng.com
 Missouri Certificate of Authority # 000556

FINKLE + WILLIAMS Architecture
 7037 College Boulevard, Suite 415
 Overland Park, KS 66211
 913.498.1550
 www.finklewilliams.com
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PROJECT:

Paragon Star Soccer Complex

Soccer Complex Storm Sewer
 1401 NW View High Dr, Lee's Summit, MO 64081
 Field Storm Sewer Plans

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DRAWING TITLE:

Utility Plan

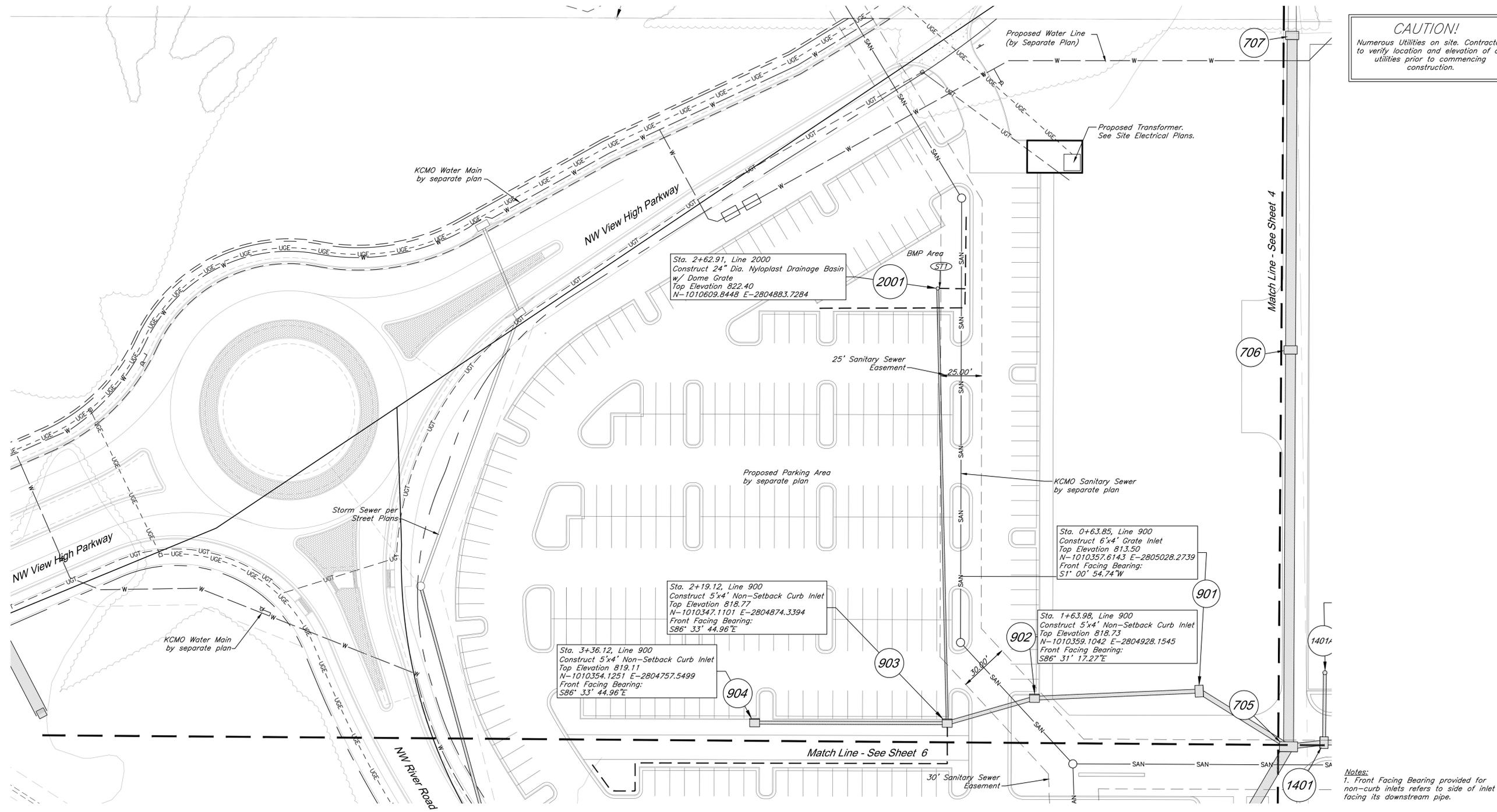
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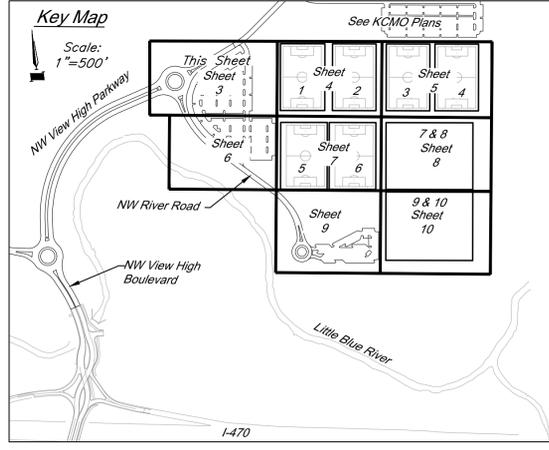
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 Construct 24" Dia. Nyloplast Drainage Basin
 w/ Dome Grate
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Sta. 2+19.12, Line 900
 Construct 5'x4' Non-Setback Curb Inlet
 Top Elevation 818.77
 N-1010347.1101 E-2804874.3394
 Front Facing Bearing:
 S86° 33' 44.96"E

Sta. 3+36.12, Line 900
 Construct 5'x4' Non-Setback Curb Inlet
 Top Elevation 819.11
 N-1010354.1251 E-2804757.5499
 Front Facing Bearing:
 S86° 33' 44.96"E

Sta. 0+63.85, Line 900
 Construct 6'x4' Grate Inlet
 Top Elevation 813.50
 N-1010357.6143 E-2805028.2739
 Front Facing Bearing:
 S1° 00' 54.74"W

Sta. 1+63.98, Line 900
 Construct 5'x4' Non-Setback Curb Inlet
 Top Elevation 818.73
 N-1010359.1042 E-2804928.1545
 Front Facing Bearing:
 S86° 31' 17.27"E



Storm Sewer Construction Notes:
 (ST) Connect Perforated 4" HDPE Underdrain to structure 2001, E=819.30
 Install 150 LF perforated 4" HDPE pipe @ min. 1% as shown.
 See pipe underdrain details, sheet 22.

Utility Legend

| | |
|---|---|
| <ul style="list-style-type: none"> ⊠ CATV Ped. Existing Cable TV Pedestal ⊠ P.P. Existing Power Pole ⊠ Existing Guy Anchor ⊠ EMH Existing Electrical Manhole ⊠ Existing Electrical Transformer ⊠ G.M. Existing Gas Meter ⊠ Existing Curb Inlet ⊠ SSMH Existing Sanitary Sewer Manhole ⊠ S.O. Existing Sanitary Cleanout ⊠ L.P. Existing Light Pole ⊠ Existing Boring Hole ⊠ Existing Sign ⊠ Tel. Ped. Existing Telephone Pedestal ⊠ T.S. Existing Traffic Signal Post ⊠ FMH Existing Traffic Manhole ⊠ F.H. Existing Fire Hydrant | <ul style="list-style-type: none"> — W.M. Existing Water Meter — FO Existing Fiber Optic Line — FP Existing Fire Protection Line — G Existing Gas Line — OHE Existing Over Head Electric — OHT Existing Over Head Telephone — OHTV Existing Over Head Cable TV — P Property Line — ROW Right-of-Way Line — SAN Existing Sanitary Sewer Line — UGE Existing Underground Electric — UGT Existing Underground Telephone — UGTV Existing Underground Cable TV — W Existing Water Line — Proposed Storm Sewer — Existing Storm Sewer — Underdrain |
|---|---|

Notes:
 1. Front Facing Bearing provided for non-curb inlets refers to side of inlet facing its downstream pipe.

GBA
 1801 Renner Boulevard
 Lenexa, KS 66219
 913.492.0400
 www.gba.com
 MO Certificate of Authority # 000133

LAND3 Studio, LLC
 317 SE Main
 Lee's Summit, MO 64063
 www.land3studio.com
 MO Certificate of Authority # 2008001860

Hoerr Schaudt Landscape Architects
 2100 Centra Street, Suite 01C
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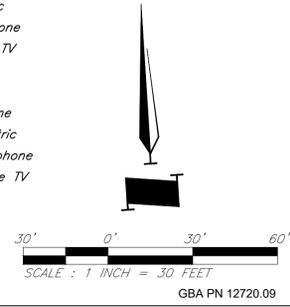
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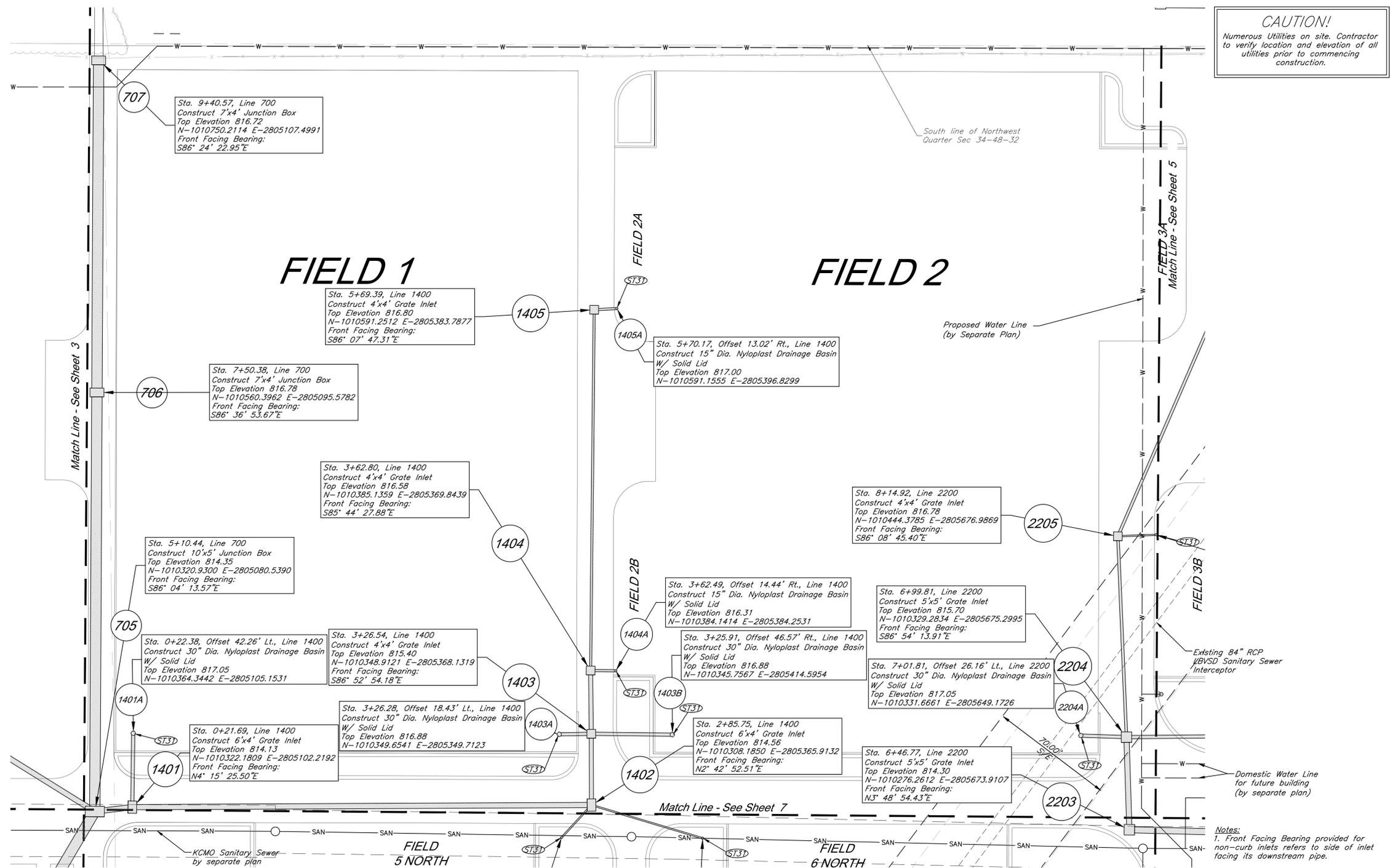


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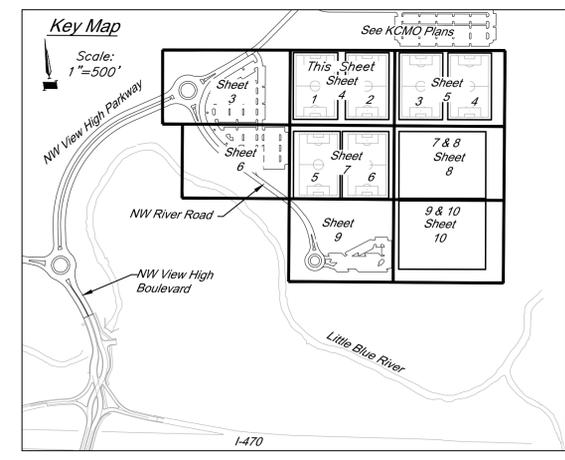
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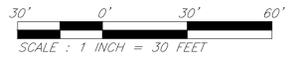
CAUTION!
 Numerous Utilities on site. Contractor to verify location and elevation of all utilities prior to commencing construction.



Storm Sewer Construction Notes:
 (ST3) See Soccer Complex Plans for field drainage continuation

Utility Legend

| | |
|---|--|
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|---|--|



GBA
 1981 Rainier Boulevard
 Lenexa, KS 66219
 913.492.0400
 www.gba.com
 MO Certificate of Authority # 000133

LAND3 Studio, LLC
 317 SE Main
 Lee's Summit, MO 64083
 www.land3studio.com
 MO Certificate of Authority # 2008001860

Hoer Schaudt Landscape Architects
 2100 Central Street, Suite 01C
 Kansas City, MO 64108
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 8343 Lenexa Drive
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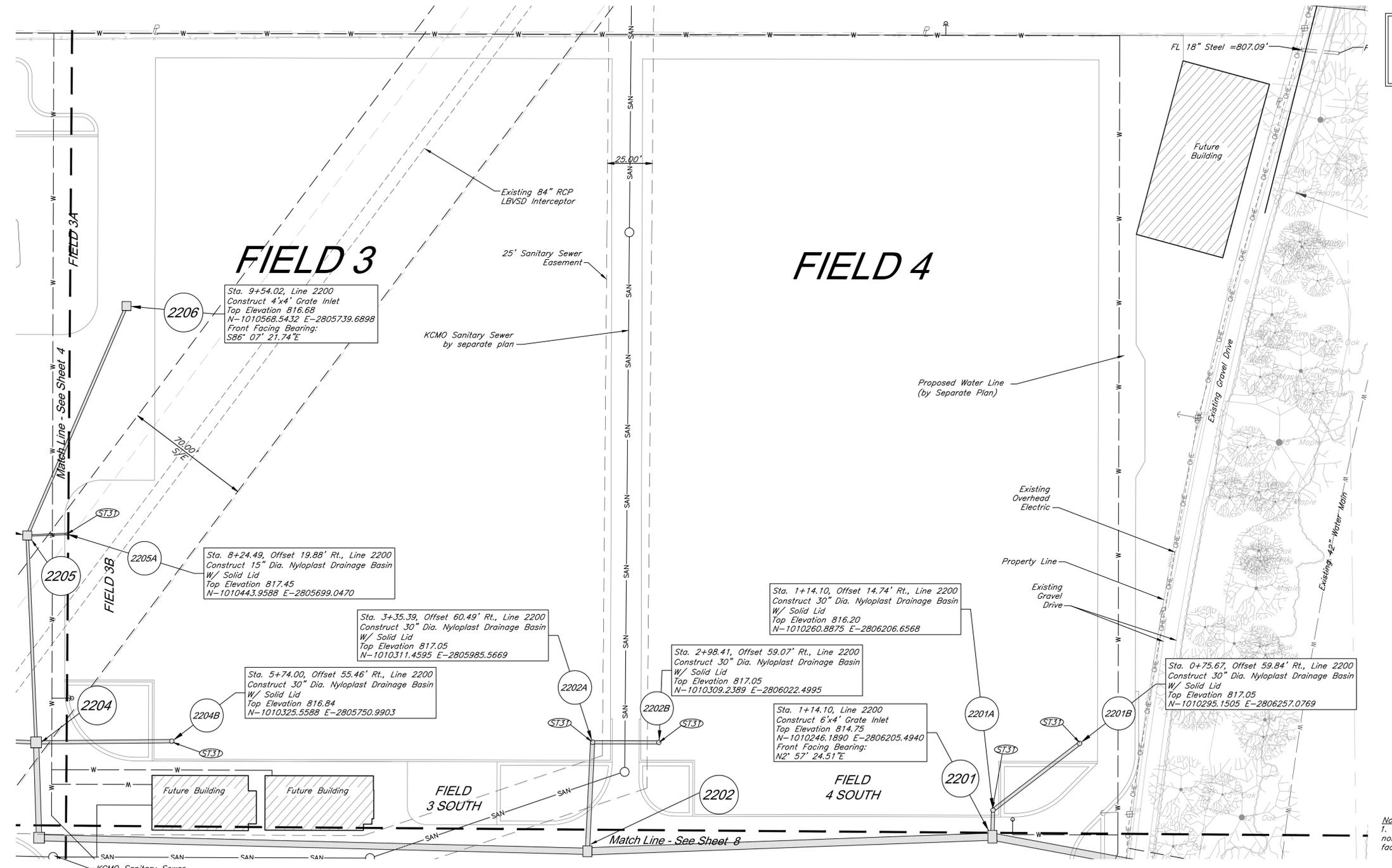


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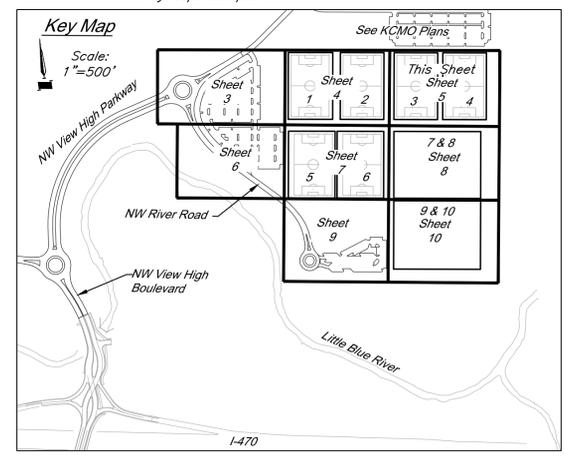
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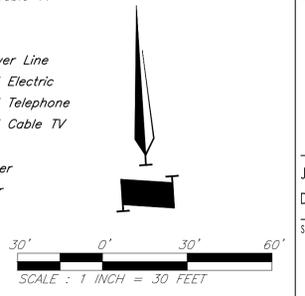


Storm Sewer Construction Notes:
 (ST31) See Soccer Complex Plans for field drainage continuation

Utility Legend

| | |
|---|--|
| <ul style="list-style-type: none"> ⊠ CATV Ped Existing Cable TV Pedestal ⊠ P.P. Existing Power Pole ⊠ Existing Guy Anchor ⊠ E.M.H. Existing Electrical Manhole ⊠ E.E.T. Existing Electrical Transformer ⊠ G.M. Existing Gas Meter ⊠ Existing Curb Inlet ⊠ S.S.M.H. Existing Sanitary Sewer Manhole ⊠ Existing Sanitary Cleanout ⊠ L.P. Existing Light Pole ⊠ Existing Boring Hole ⊠ Existing Sign ⊠ Tel. Ped Existing Telephone Pedestal ⊠ T.S.P. Existing Traffic Signal Post ⊠ T.M.H. Existing Traffic Manhole ⊠ F.H. Existing Fire Hydrant | <ul style="list-style-type: none"> — FO — Existing Fiber Optic Line — FP — Existing Fire Protection Line — G — Existing Gas Line — OHE — Existing Over Head Electric — OHT — Existing Over Head Telephone — OHTV — Existing Over Head Cable TV — P — Property Line — ROW — Right-of-Way Line — SAN — Existing Sanitary Sewer Line — UGE — Existing Underground Electric — UGT — Existing Underground Telephone — UGTV — Existing Underground Cable TV — W — Existing Water Line — Proposed Storm Sewer — Existing Storm Sewer — Underdrain |
|---|--|

Notes:
 1. Front Facing Bearing provided for non-curb inlets refers to side of inlet facing its downstream pipe.



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PROJECT:
Paragon Star Soccer Complex
 Soccer Complex Storm Sewer
 1401 NW View High Dr, Lee's Summit, MO 64081
 Field Storm Sewer Plans

ISSUE:
 10/17/19 City Comments
 3/13/20 City Comments
 4/28/20 City Comments
 5/22/20 City Comments

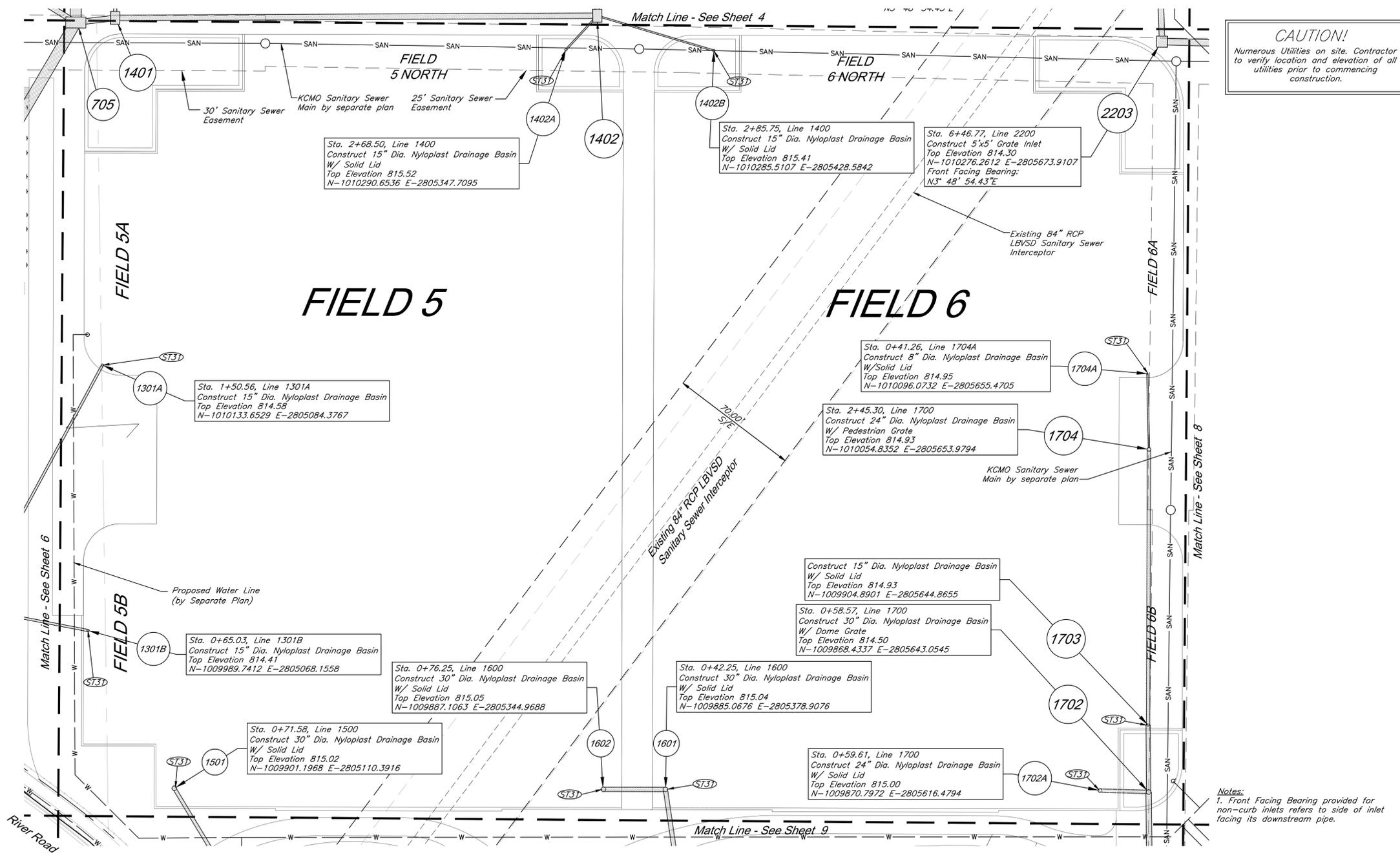


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Utility Plan

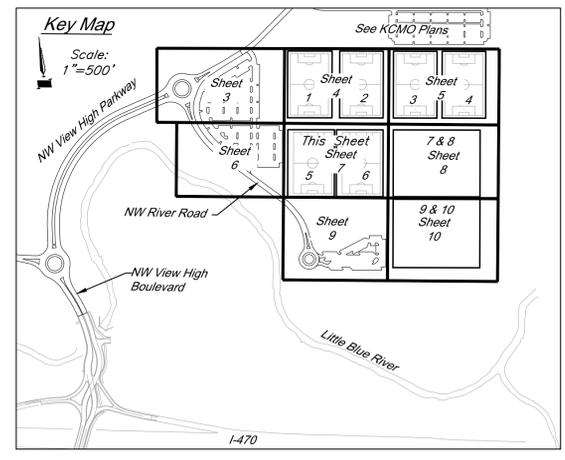
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Storm Sewer Construction Notes:
 (ST31) See Soccer Complex Plans for field drainage continuation

Utility Legend

| | |
|---------------------------------|--------------------------------|
| Existing Cable TV Pedestal | Existing Water Meter |
| Existing Power Pole | Existing Fiber Optic Line |
| Existing Guy Anchor | Existing Fire Protection Line |
| Existing Electrical Manhole | Existing Gas Line |
| Existing Electrical Transformer | Existing Over Head Electric |
| Existing Gas Meter | Existing Over Head Telephone |
| Existing Curb Inlet | Existing Over Head Cable TV |
| Existing Sanitary Sewer Manhole | Property Line |
| Existing Sanitary Cleanout | Right-of-Way Line |
| Existing Light Pole | Existing Sanitary Sewer Line |
| Existing Boring Hole | Existing Underground Electric |
| Existing Sign | Existing Underground Telephone |
| Existing Telephone Pedestal | Existing Underground Cable TV |
| Existing Traffic Signal Post | Existing Water Line |
| Existing Traffic Manhole | Proposed Storm Sewer |
| Existing Fire Hydrant | Existing Storm Sewer |
| | Underdrain |

Notes:
 1. Front Facing Bearing provided for non-curb inlets refers to side of inlet facing its downstream pipe.

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ISSUE:
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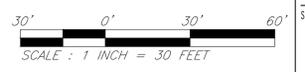


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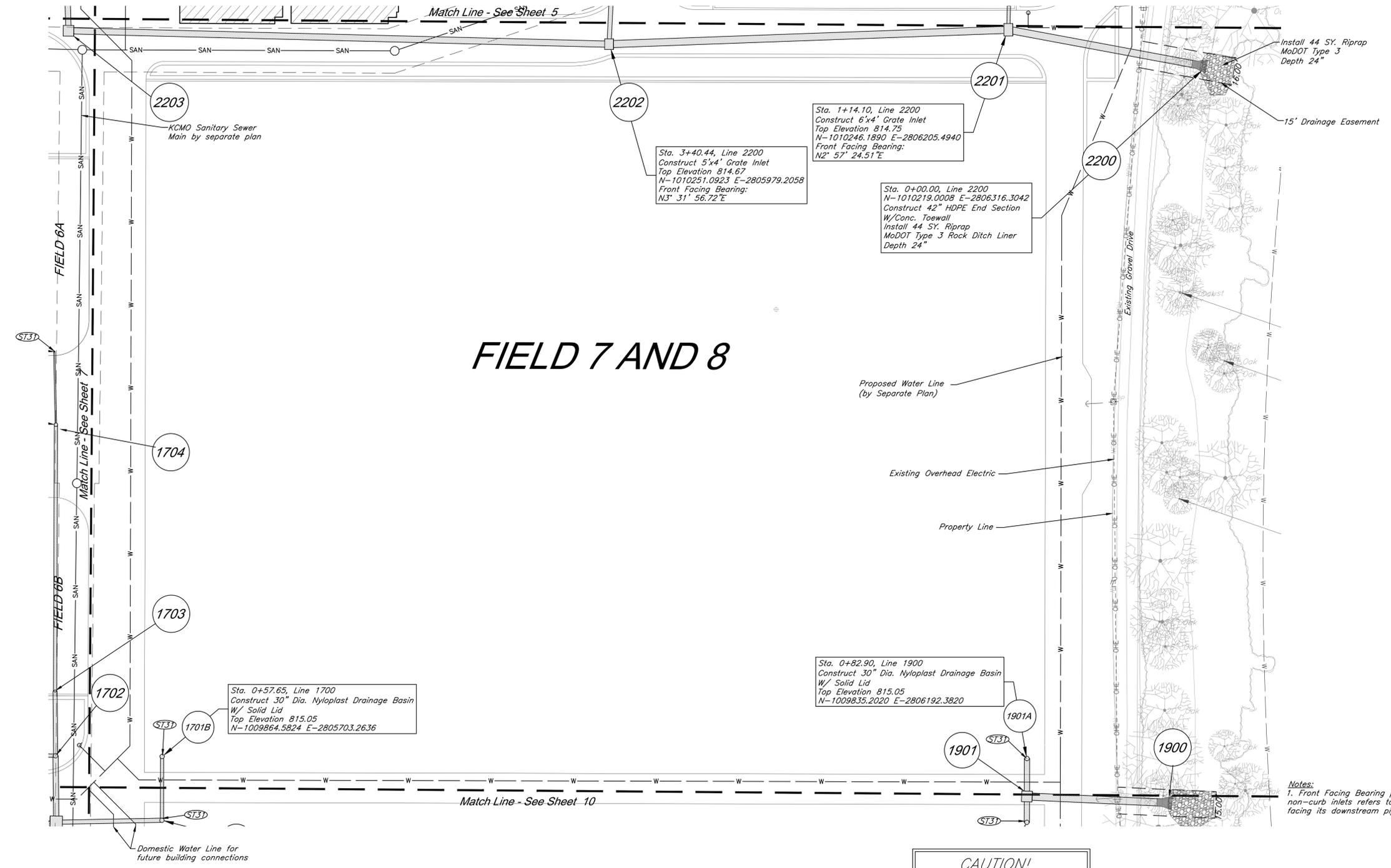
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DATE: 05.22.2020 **DRAWN BY:** GBA

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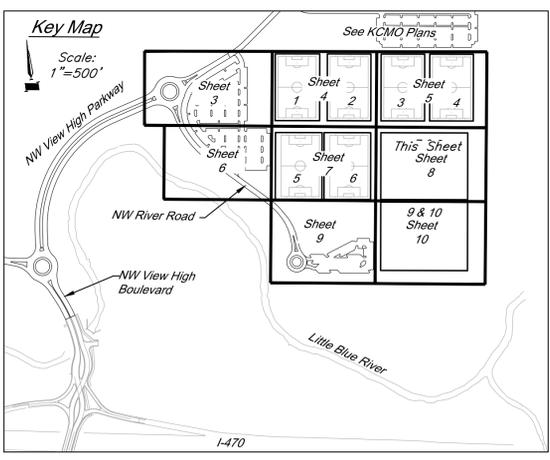
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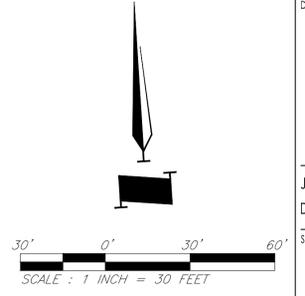
FIELD 7 AND 8



Storm Sewer Construction Notes:
 (ST3) See Soccer Complex Plans for field drainage continuation

CAUTION!
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| Utility Legend | |
|----------------|---------------------------------|
| CATV Ped | Existing Cable TV Pedestal |
| E.P. | Existing Power Pole |
| Guy Anchor | Existing Guy Anchor |
| EMH | Existing Electrical Manhole |
| E.T. | Existing Electrical Transformer |
| G.M. | Existing Gas Meter |
| C.I. | Existing Curb Inlet |
| SSMH | Existing Sanitary Sewer Manhole |
| S.C. | Existing Sanitary Cleanout |
| L.P. | Existing Light Pole |
| B.H. | Existing Boring Hole |
| Sign | Existing Sign |
| Tel. Ped | Existing Telephone Pedestal |
| T.S. | Existing Traffic Signal Post |
| T.M. | Existing Traffic Manhole |
| F.H. | Existing Fire Hydrant |
| W.M. | Existing Water Meter |
| FO | Existing Fiber Optic Line |
| FP | Existing Fire Protection Line |
| G | Existing Gas Line |
| OHE | Existing Over Head Electric |
| OHT | Existing Over Head Telephone |
| OHTV | Existing Over Head Cable TV |
| P.L. | Property Line |
| ROW | Right-of-Way Line |
| SAN | Existing Sanitary Sewer Line |
| UGE | Existing Underground Electric |
| UGT | Existing Underground Telephone |
| UCTV | Existing Underground Cable TV |
| W | Existing Water Line |
| | Proposed Storm Sewer |
| | Existing Storm Sewer |
| | Underdrain |



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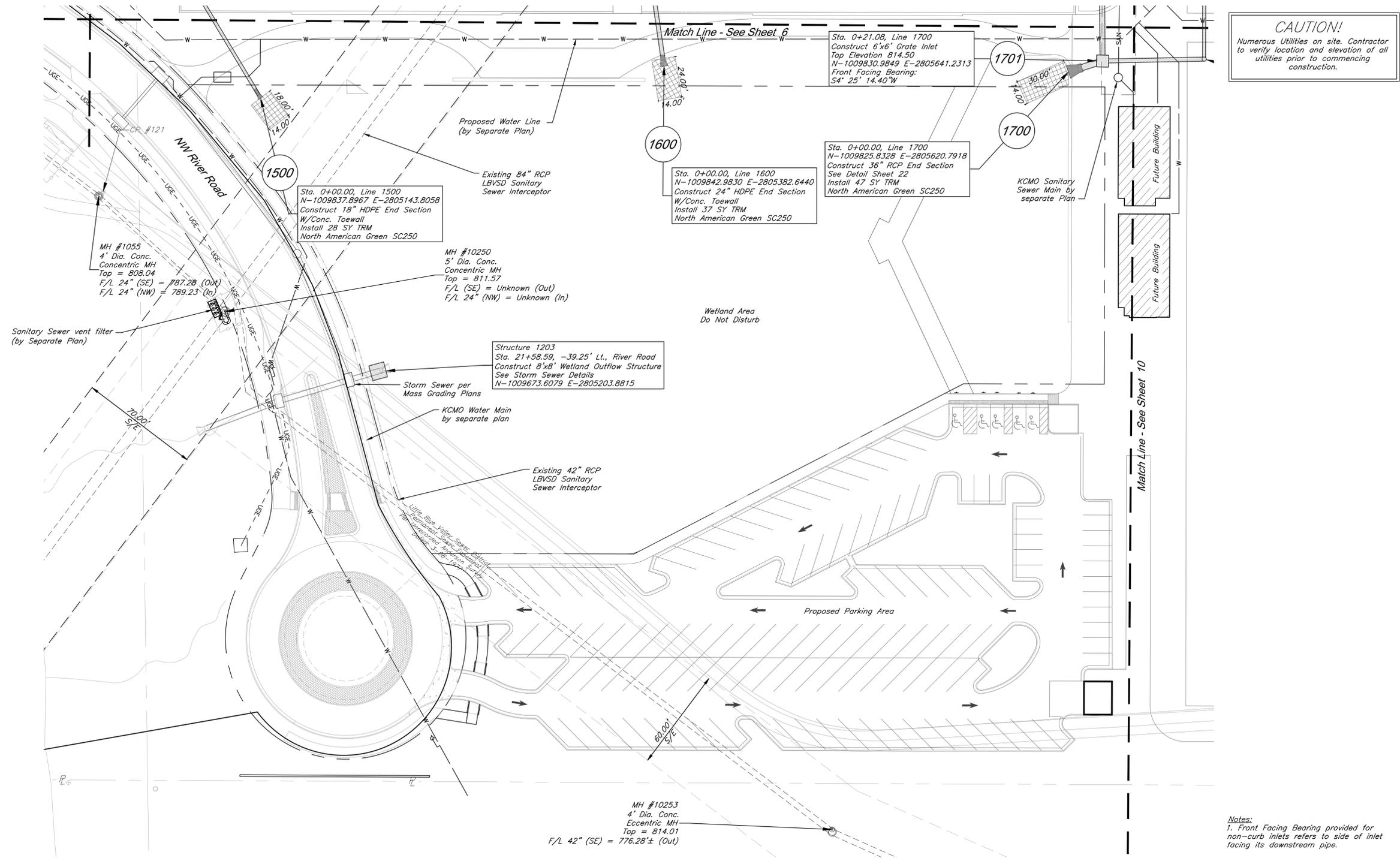
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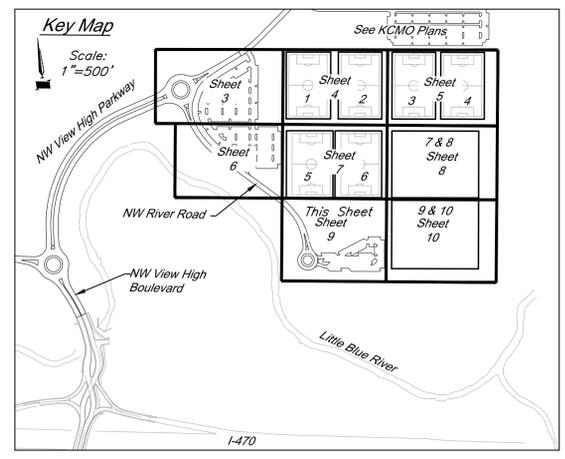
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JOB NO: 1197 **SCALE:**
DATE: 05.22.2020 **DRAWN BY:** GBA
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Utility Legend

| | | | |
|------------|---------------------------------|------|--------------------------------|
| ⊠ CATV Ped | Existing Cable TV Pedestal | W.M. | Existing Water Meter |
| ⊠ P.P. | Existing Power Pole | FO | Existing Fiber Optic Line |
| ⊠ G.A. | Existing Guy Anchor | FP | Existing Fire Protection Line |
| ⊠ E.M.H. | Existing Electrical Manhole | G | Existing Gas Line |
| ⊠ E.T. | Existing Electrical Transformer | OHE | Existing Over Head Electric |
| ⊠ G.M. | Existing Gas Meter | OHT | Existing Over Head Telephone |
| ⊠ C.I. | Existing Curb Inlet | OHTV | Existing Over Head Cable TV |
| ⊠ SSMH | Existing Sanitary Sewer Manhole | PL | Property Line |
| ⊠ S.C. | Existing Sanitary Cleanout | ROW | Right-of-Way Line |
| ⊠ L.P. | Existing Light Pole | SAN | Existing Sanitary Sewer Line |
| ⊠ B.H. | Existing Boring Hole | UGE | Existing Underground Electric |
| ⊠ S. | Existing Sign | UGT | Existing Underground Telephone |
| ⊠ Tel. Ped | Existing Telephone Pedestal | UGTV | Existing Underground Cable TV |
| ⊠ T.S.P. | Existing Traffic Signal Post | W | Existing Water Line |
| ⊠ T.M.H. | Existing Traffic Manhole | SS | Proposed Storm Sewer |
| ⊠ F.H. | Existing Fire Hydrant | ES | Existing Storm Sewer |
| | | UD | Underdrain |

Notes:
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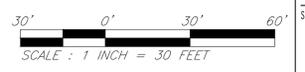
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 LICENSED PROFESSIONAL ENGINEER
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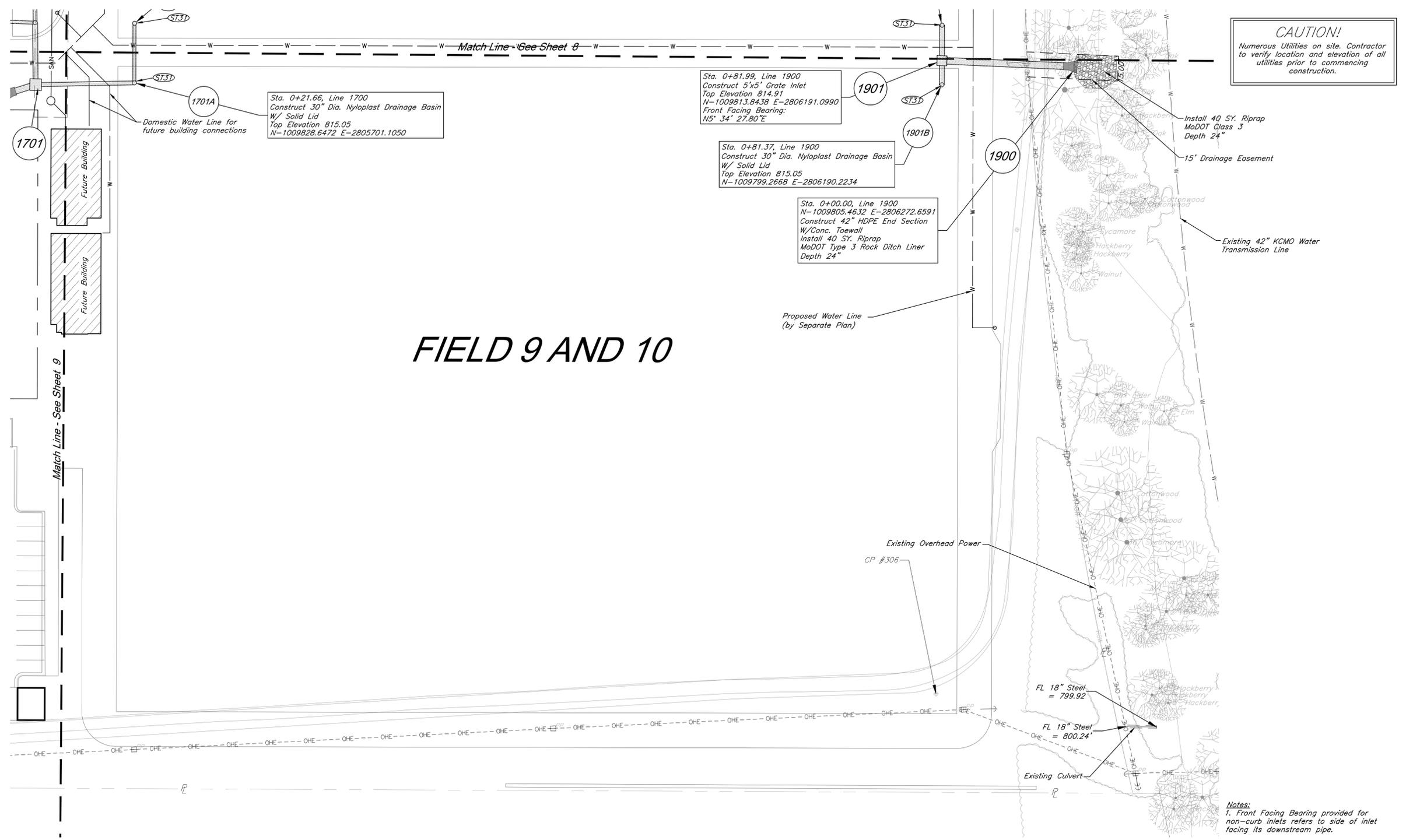
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DATE: 05.22.2020 **DRAWN BY:** GBA

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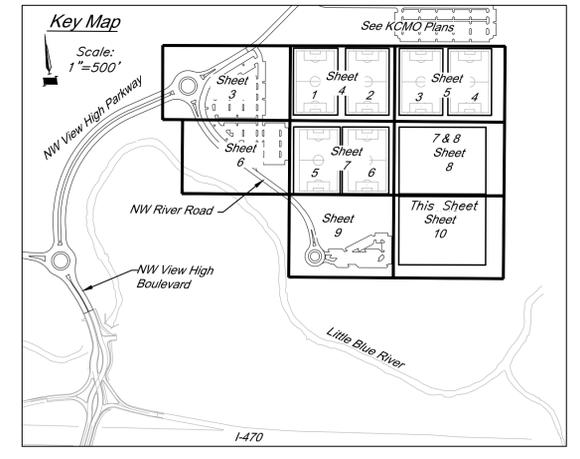


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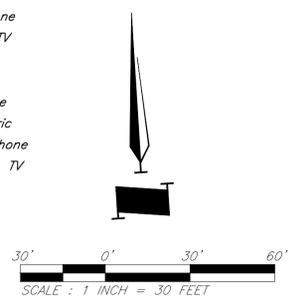
FIELD 9 AND 10



Storm Sewer Construction Notes:
 (ST3) See Soccer Complex Plans for field drainage continuation

Utility Legend

| | |
|---|--|
| <ul style="list-style-type: none"> □ CATV Ped. Existing Cable TV Pedestal □ P.P. Existing Power Pole ← Existing Guy Anchor ⊕ EMH Existing Electrical Manhole ⊕ G.M. Existing Gas Meter □ Existing Curb Inlet ⊕ SSMH Existing Sanitary Sewer Manhole ● S.C. Existing Sanitary Cleanout ⊕ L.P. Existing Light Pole ⊕ Existing Boring Hole ⊕ Existing Sign ⊕ Tel. Ped. Existing Telephone Pedestal ⊕ T.S. Existing Traffic Signal Post ⊕ TRMH Existing Traffic Manhole ⊕ F.H. Existing Fire Hydrant | <ul style="list-style-type: none"> — FO — Existing Fiber Optic Line — FP — Existing Fire Protection Line — G — Existing Gas Line --- OHE --- Existing Over Head Electric --- OHT --- Existing Over Head Telephone --- OHTV --- Existing Over Head Cable TV — P — Property Line — ROW — Right-of-Way Line — SAN — Existing Sanitary Sewer Line --- UGE --- Existing Underground Electric --- UGT --- Existing Underground Telephone --- UGTV --- Existing Underground Cable TV — W — Existing Water Line — Proposed Storm Sewer — Existing Storm Sewer --- Underdrain |
|---|--|



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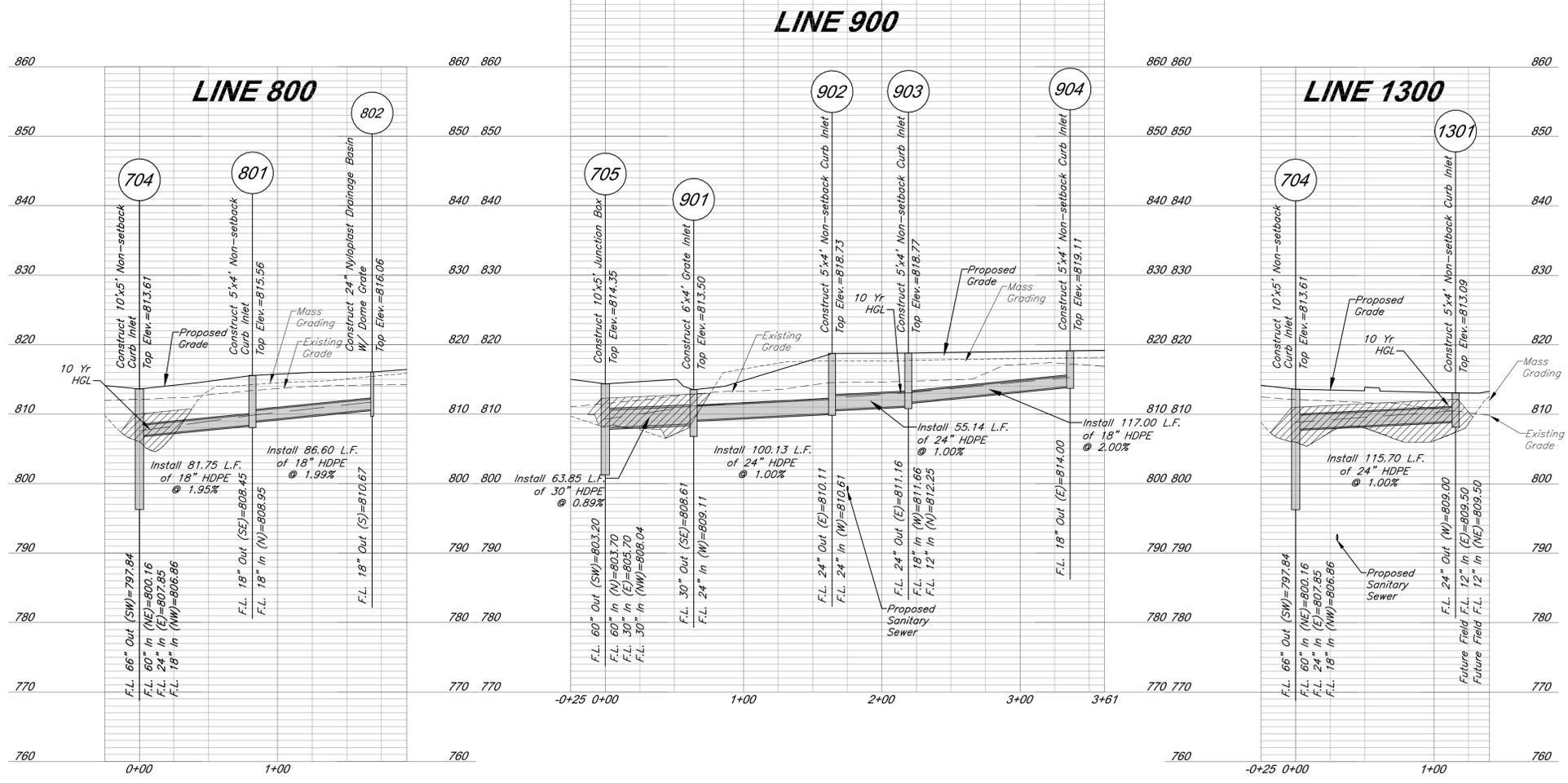
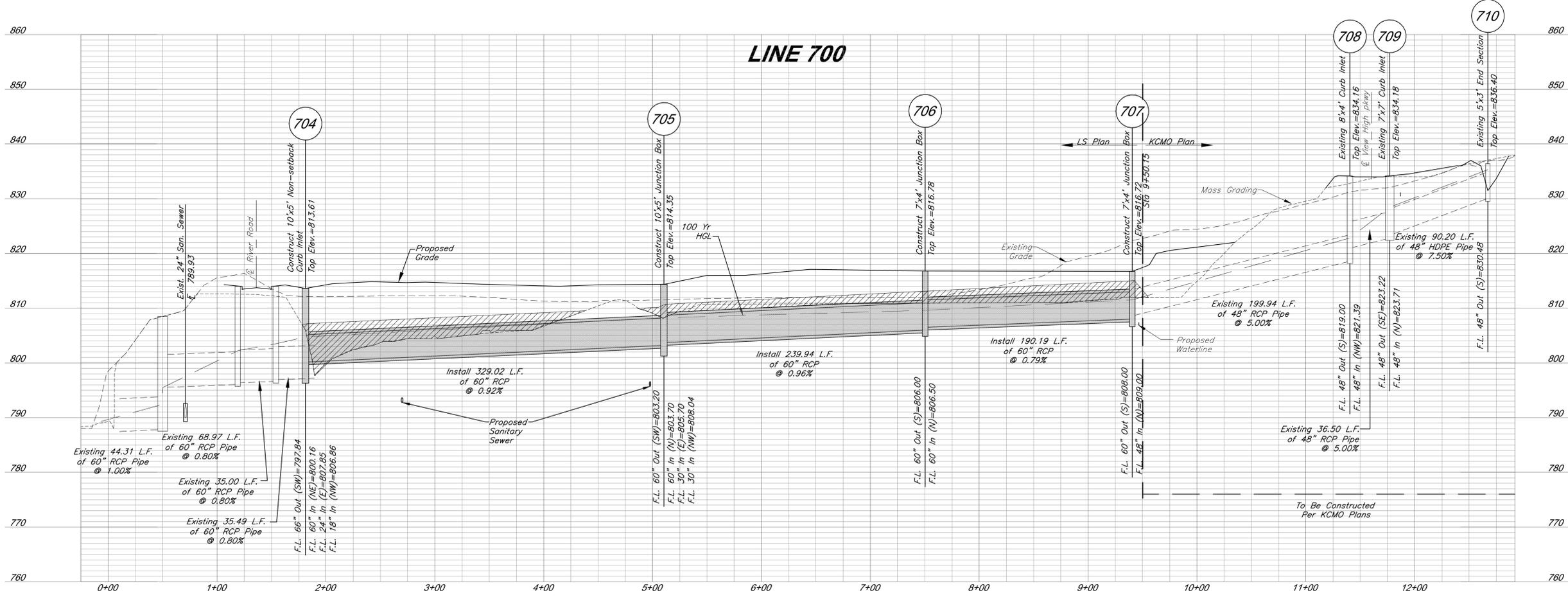


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LEGEND

Compacted Fill shall be placed to a minimum of 18 inches above the top of pipe prior to installation.

Horizontal Scale: 1" = 50'
Vertical Scale: 1" = 10'

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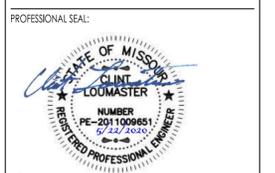
Paragon Star Soccer Complex

Soccer Complex Storm Sewer
1401 NW View High Dr, Lee's Summit, MO 64081

Field Storm Sewer Plans

ISSUE:

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| 5/22/20 | City Comments |

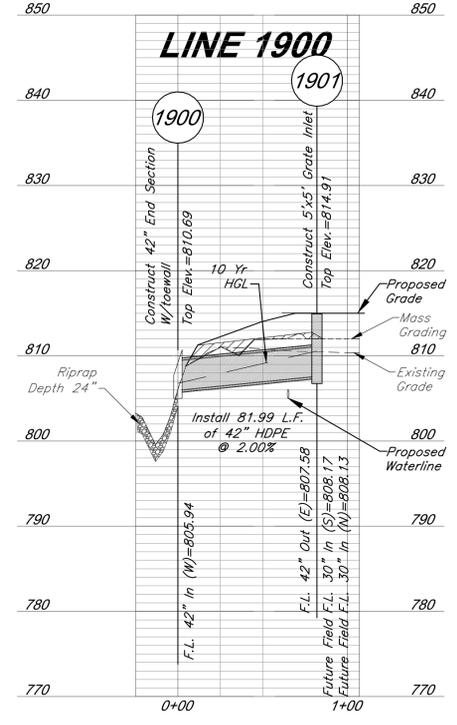
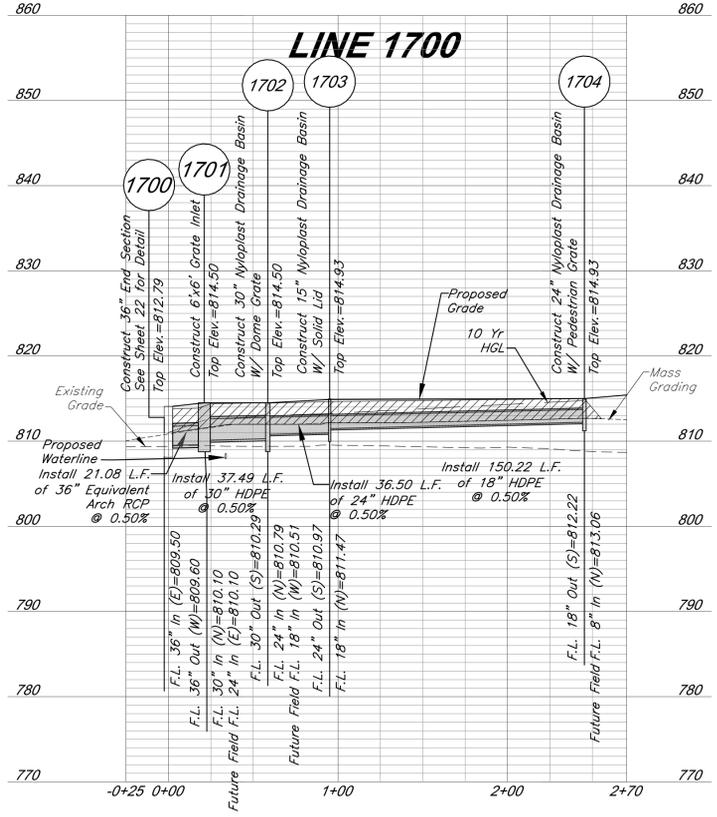
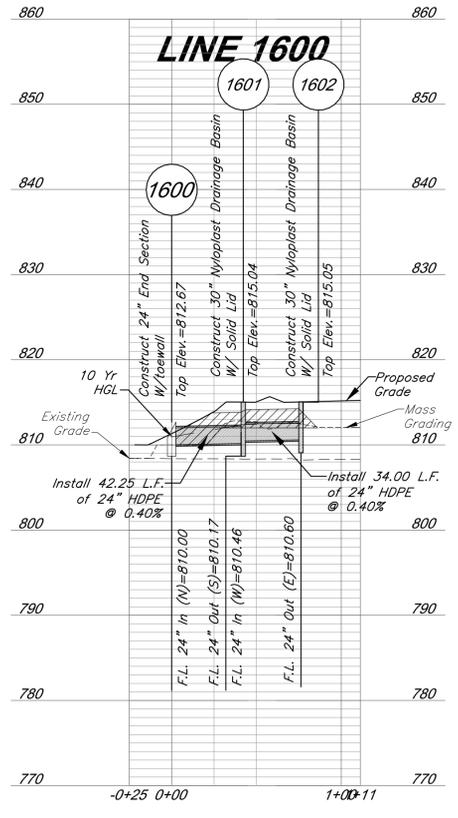
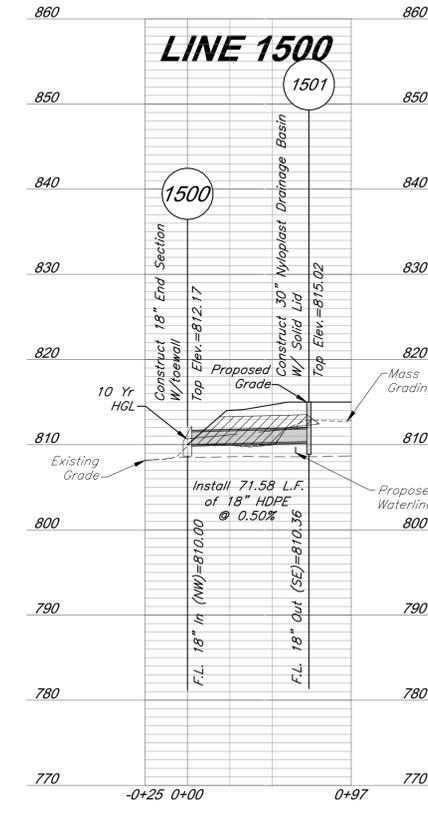
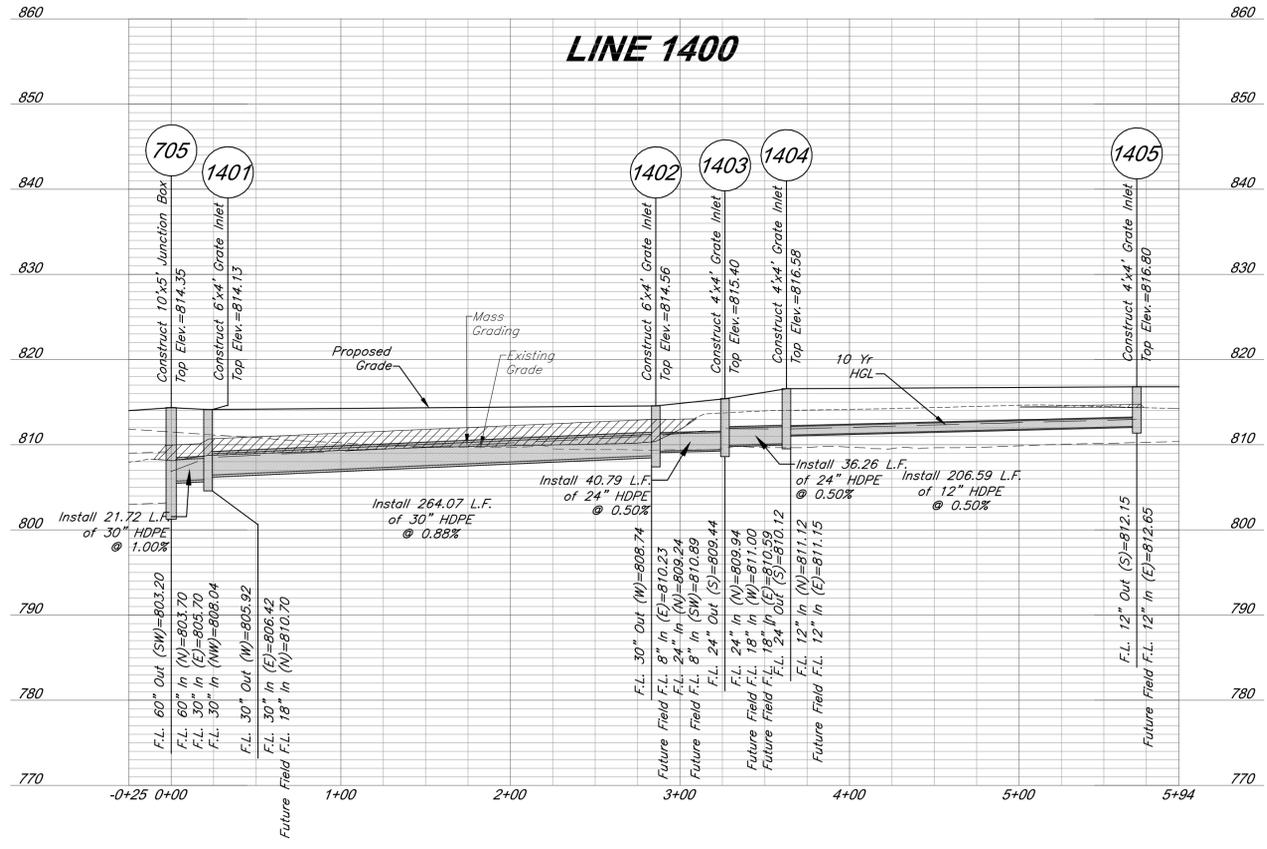


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Storm Sewer Profiles

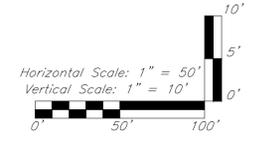
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PROJECT:

Paragon Star Soccer Complex

Soccer Complex Storm Sewer
1401 NW View High Dr, Lee's Summit, MO 64081
Field Storm Sewer Plans

ISSUE:

- 10/17/19 City Comments
- 3/13/20 City Comments
- 4/28/20 City Comments
- 5/22/20 City Comments

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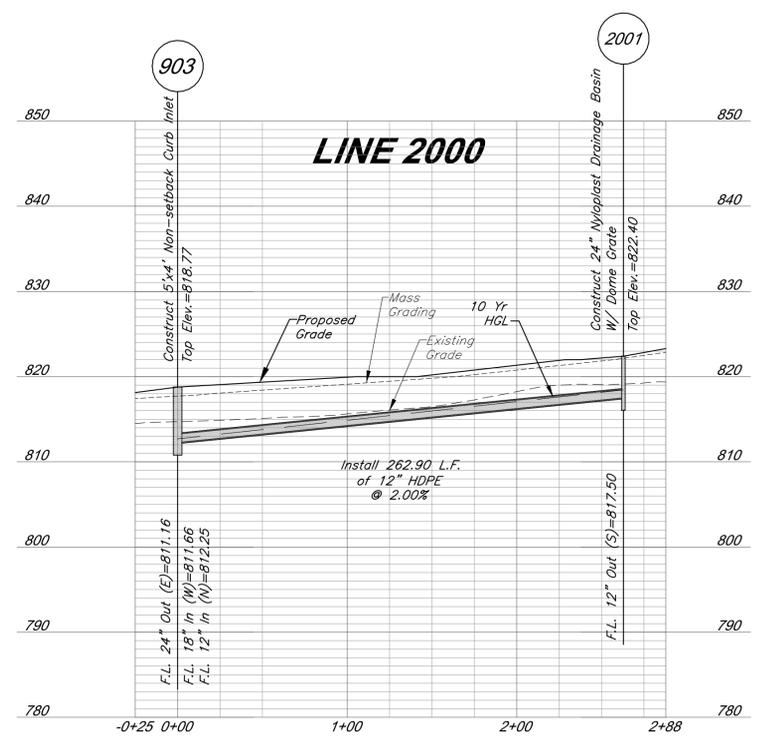
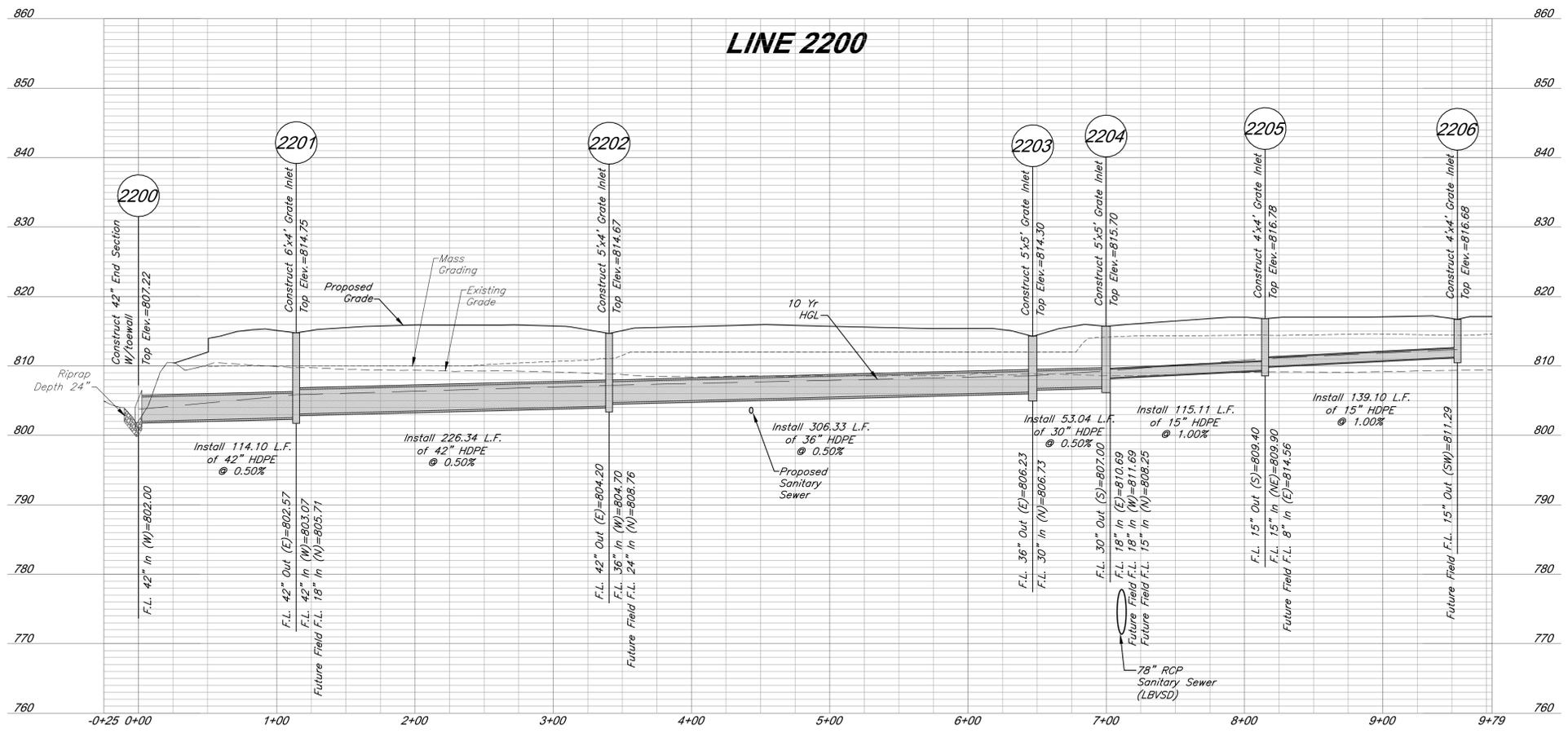


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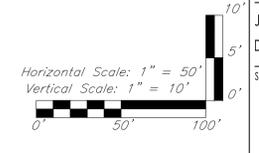
Storm Sewer Profiles

JOB NO: 1197 SCALE:
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Note: Compacted Fill shall be placed to a minimum of 18 inches above the top of pipe prior to installation.



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 Lenexa, KS 66219
 913.492.0400
 www.gbateam.com
 MO Certificate of Authority # 000133

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 317 E Main
 Lee's Summit, MO 64083
 www.land3studio.com
 MO Certificate of Authority # 2008001860

 Hoerr Schaudt Landscape Architects
 2100 Centra Street, Suite 01C
 Kansas City, MO 64108
 816.510.0438
 www.hoerschaudt.com
 MO Certificate of Authority # 2019004088

 HENDERSON ENGINEERS, Inc.
 8345 Lemona Drive
 Lenexa, KS 66214
 913.742.5000
 www.he-eng.com
 Missouri Certificate of Authority # 000556

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 7807 College Boulevard, Suite 415
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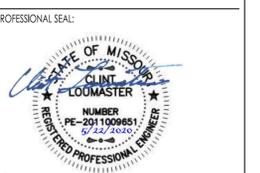
PROJECT:

Paragon Star Soccer Complex

Soccer Complex Storm Sewer
 1401 NW View High Dr, Lee's Summit, MO 64081
 Field Storm Sewer Plans

ISSUE:

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| 5/22/20 | City Comments |

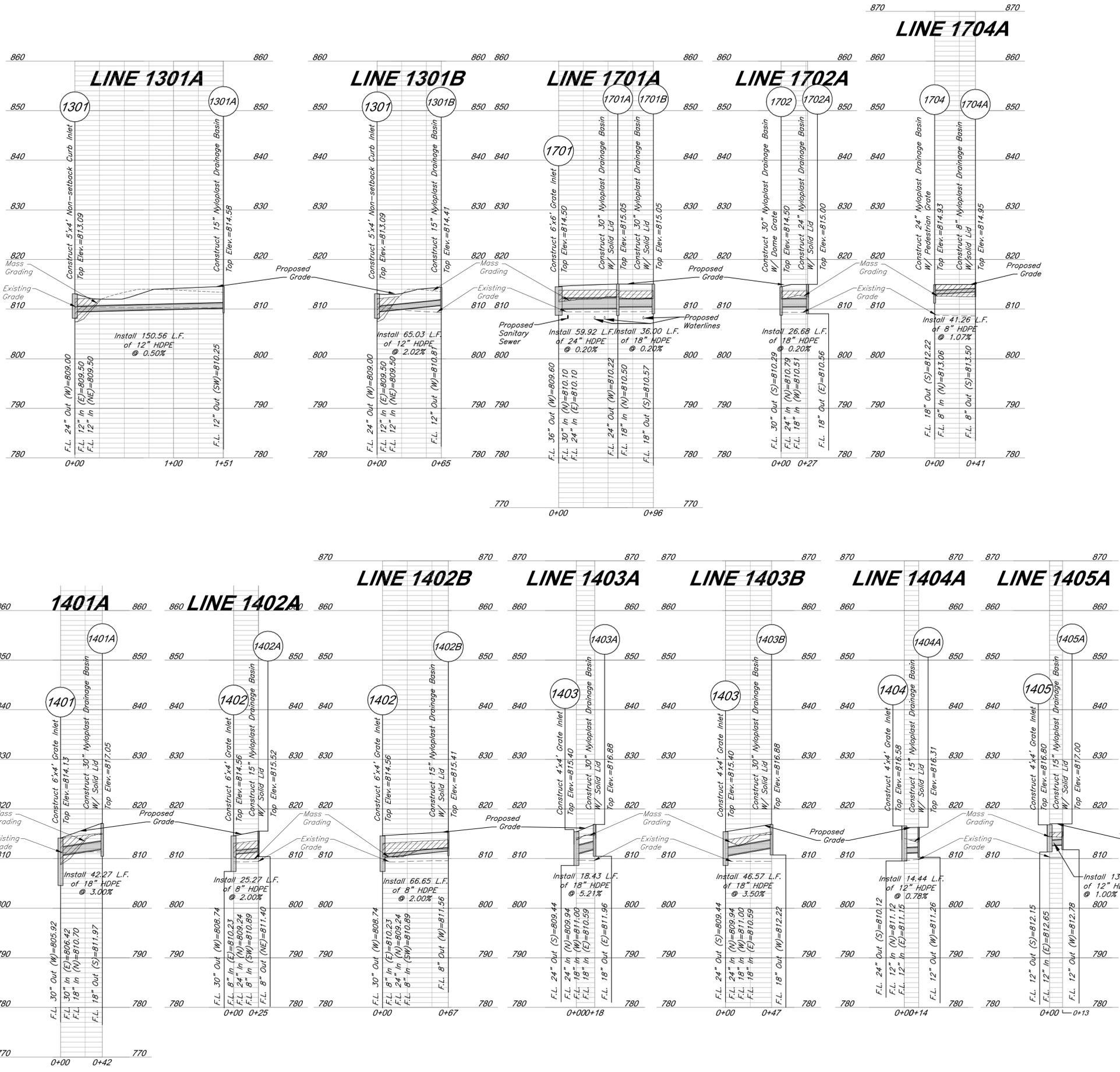


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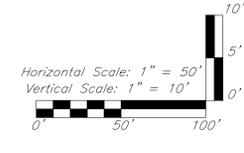
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LEGEND
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 913.492.0400
 www.gbasteam.com
 MO Certificate of Authority # 000133

LAND3 Studio, LLC
 317 SE Main
 Lee's Summit, MO 64083
 www.land3studio.com
 MO Certificate of Authority # 2008001860

Hoerr Schaudt Landscape Architects
 2100 Centra Street, Suite 01C
 Kansas City, MO 64108
 816.510.0438
 www.hoerschaudt.com
 MO Certificate of Authority # 201904068

HENDERSON ENGINEERS, Inc.
 8343 Lenexa Drive
 Lenexa, KS 66214
 913.742.5000
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 7037 College Boulevard, Suite 415
 Overland Park, KS 66211
 913.498.1550
 www.fnklewilliams.com
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PROJECT:

Paragon Star Soccer Complex
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 1401 NW View High Dr, Lee's Summit, MO 64081
 Field Storm Sewer Plans

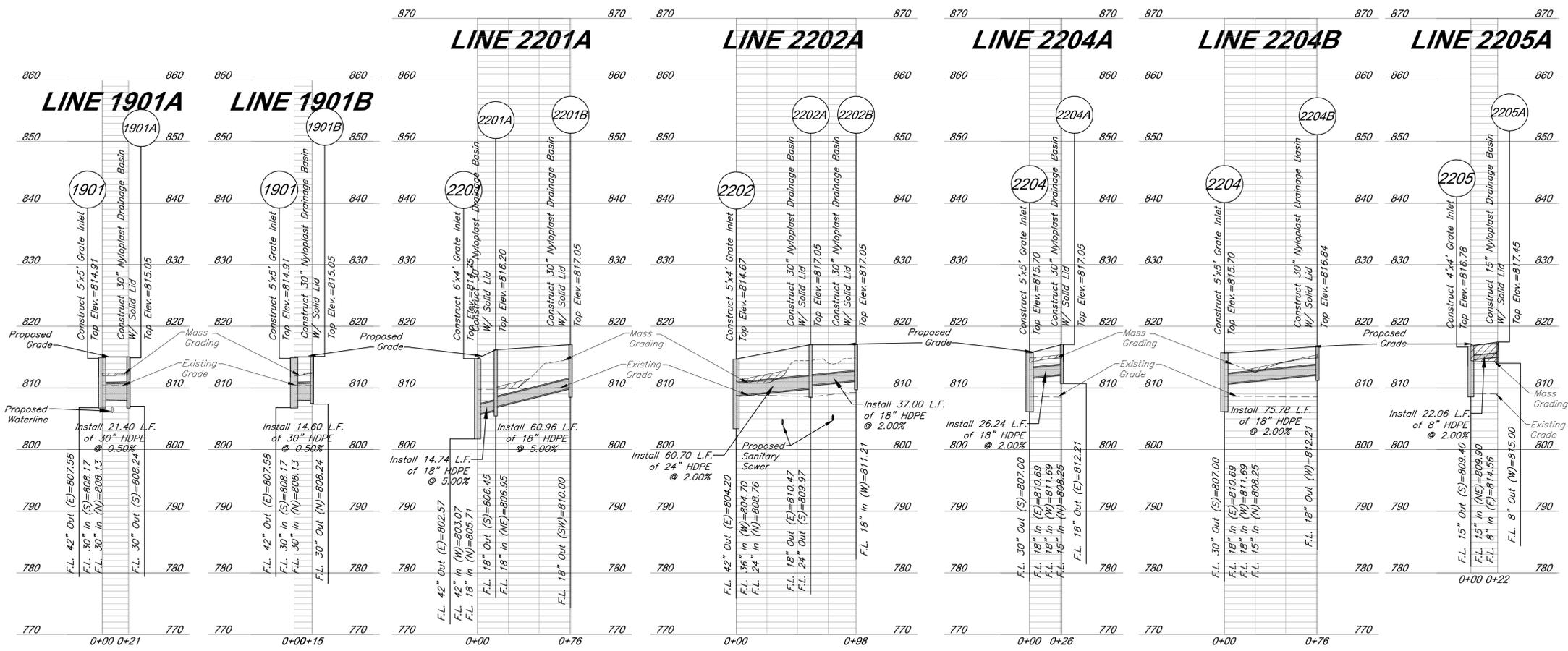
ISSUE:
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 3/13/20 City Comments
 4/28/20 City Comments
 5/22/20 City Comments



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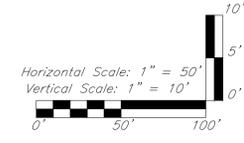
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LEGEND

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 913.492.0400
 www.gbateam.com
 MO Certificate of Authority # 000133

LANDS Studio, LLC
 317 E Main
 Lee's Summit, MO 64083
 www.landsstudio.com
 MO Certificate of Authority # 200801860

Hoerr Schaudt Landscape Architects
 2100 Centra Street, Suite 01C
 Kansas City, MO 64108
 816.510.0438
 www.hoerschaudt.com
 MO Certificate of Authority # 2019004088

HENDERSON ENGINEERS, Inc.
 8340 Lenexa Drive
 Lenexa, KS 66214
 913.742.5000
 www.heng.com
 Missouri Certificate of Authority # 000556

FINKLE + WILLIAMS Architecture
 7037 College Boulevard, Suite 415
 Overland Park, KS 66211
 913.498.1550
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Paragon Star Soccer Complex
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 1401 NW View High Dr, Lee's Summit, MO 64081
 Field Storm Sewer Plans

ISSUE:

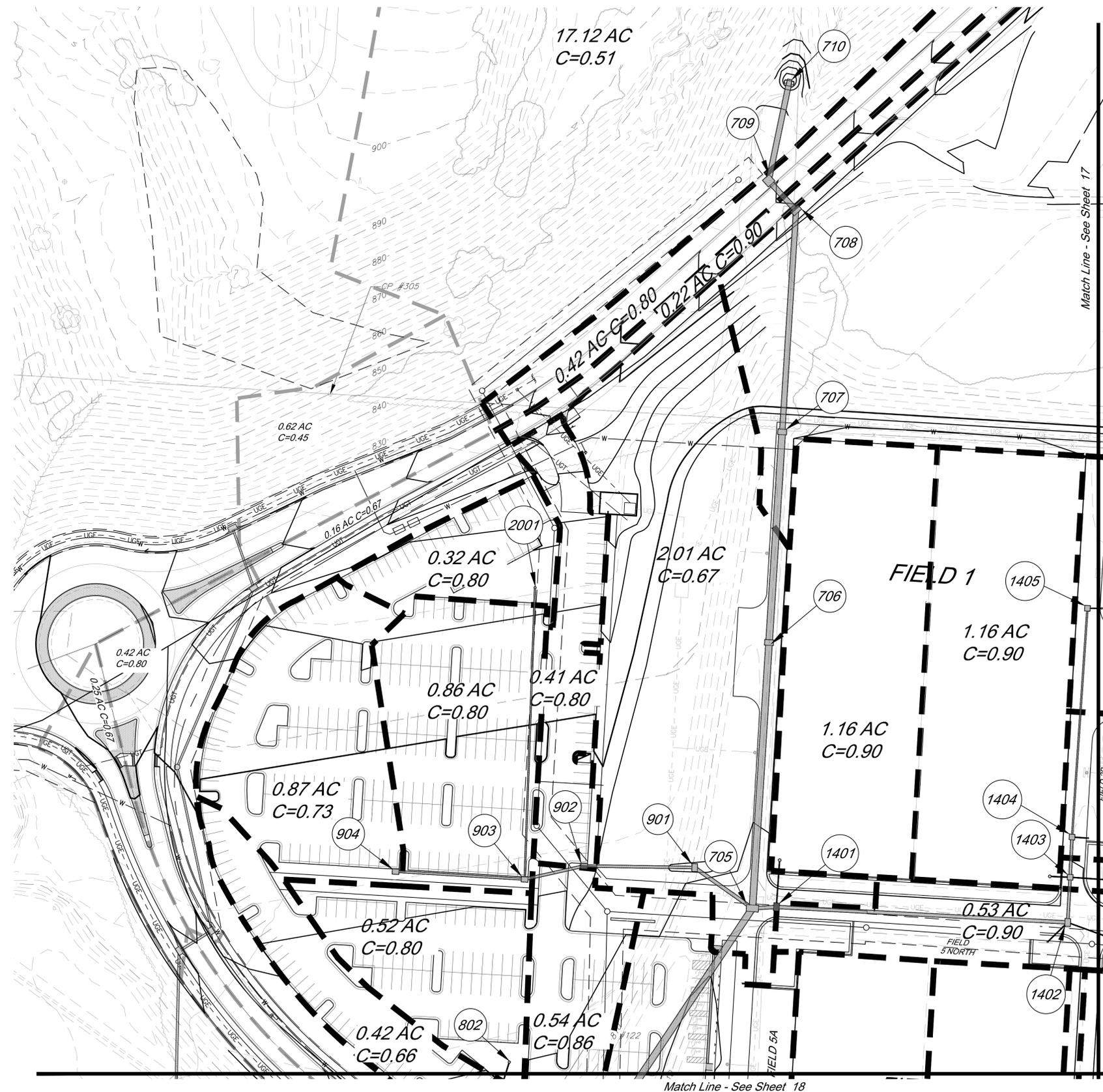
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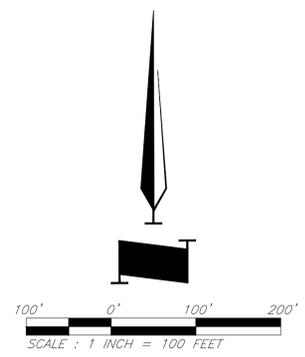
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JOB NO: 1197 SCALE:
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- Legend**
- 800 Proposed Contours
 - 800 Existing Contour
 - Proposed Drainage Area
 - 0.28 Acres Drainage Area
 - Proposed Storm Sewer
 - Future Storm Sewer



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 7801 Renner Boulevard
 Lenexa, KS 66219
 913.492.0400
 www.gbateam.com
 MO Certificate of Authority # 000133

LAND3 Studio, LLC
 317 SE Main
 Lee's Summit, MO 64083
 www.land3studio.com
 MO Certificate of Authority # 2008001860

Hoerr Schaudt Landscape Architects
 2100 Central Street, Suite 01C
 Kansas City, MO 64108
 816.510.0438
 www.hoerschaudt.com
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 8345 Lenexa Drive
 Lenexa, KS 66214
 913.742.5000
 www.he-eng.com
 Missouri Certificate of Authority # 000556

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 7037 College Boulevard, Suite 415
 Overland Park, KS 66211
 913.498.1550
 www.finklewilliams.com
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PROJECT:

Paragon Star Soccer Complex

Soccer Complex Storm Sewer
1401 NW View High Dr, Lee's Summit, MO 64081

Field Storm Sewer Plans

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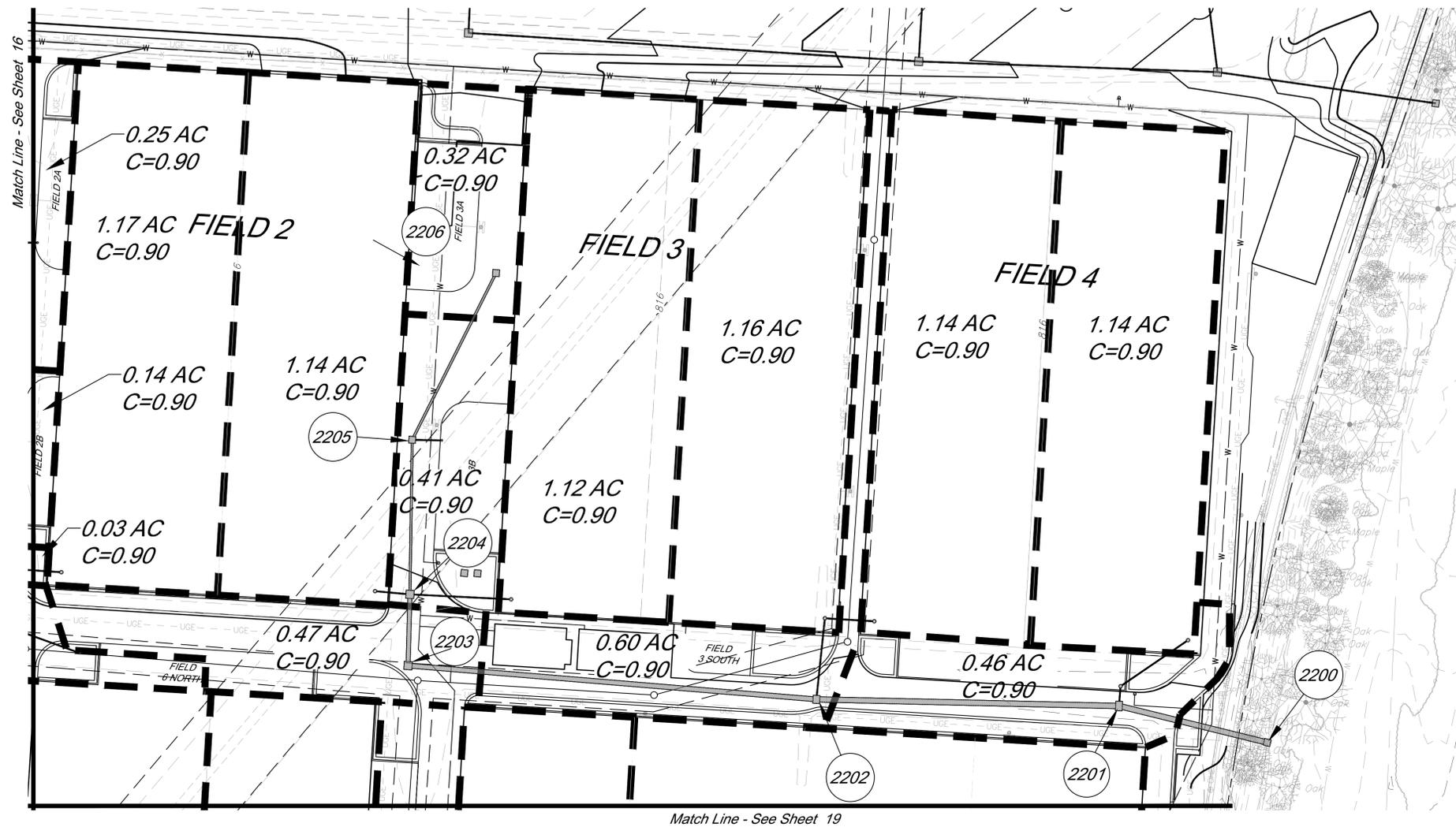
Drainage Map

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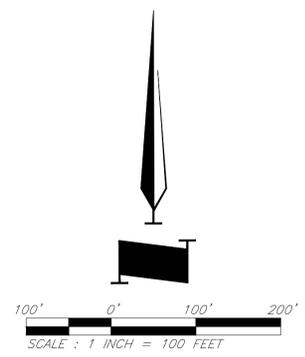
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- Legend**
- 800 Proposed Contours
 - 800 Existing Contour
 - Proposed Drainage Area
 - 0.28 Acres Drainage Area
 - Proposed Storm Sewer
 - Future Storm Sewer



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 Lenexa, KS 66219
 913.492.0400
 www.gbasteam.com
 MO Certificate of Authority # 000133

LAND3 Studio, LLC
 317 SE Main
 Lee's Summit, MO 64083
 www.land3studio.com
 MO Certificate of Authority # 2008001860

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 2100 Central Street, Suite 01C
 Kansas City, MO 64108
 816.510.0438
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 8345 Lenexa Drive
 Lenexa, KS 66214
 913.742.5000
 www.he-eng.com
 Missouri Certificate of Authority # 000556

FINKLE + WILLIAMS Architecture
 7837 College Boulevard, Suite 415
 Overland Park, KS 66211
 913.498.1550
 www.finklevilliams.com
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Field Storm Sewer Plans

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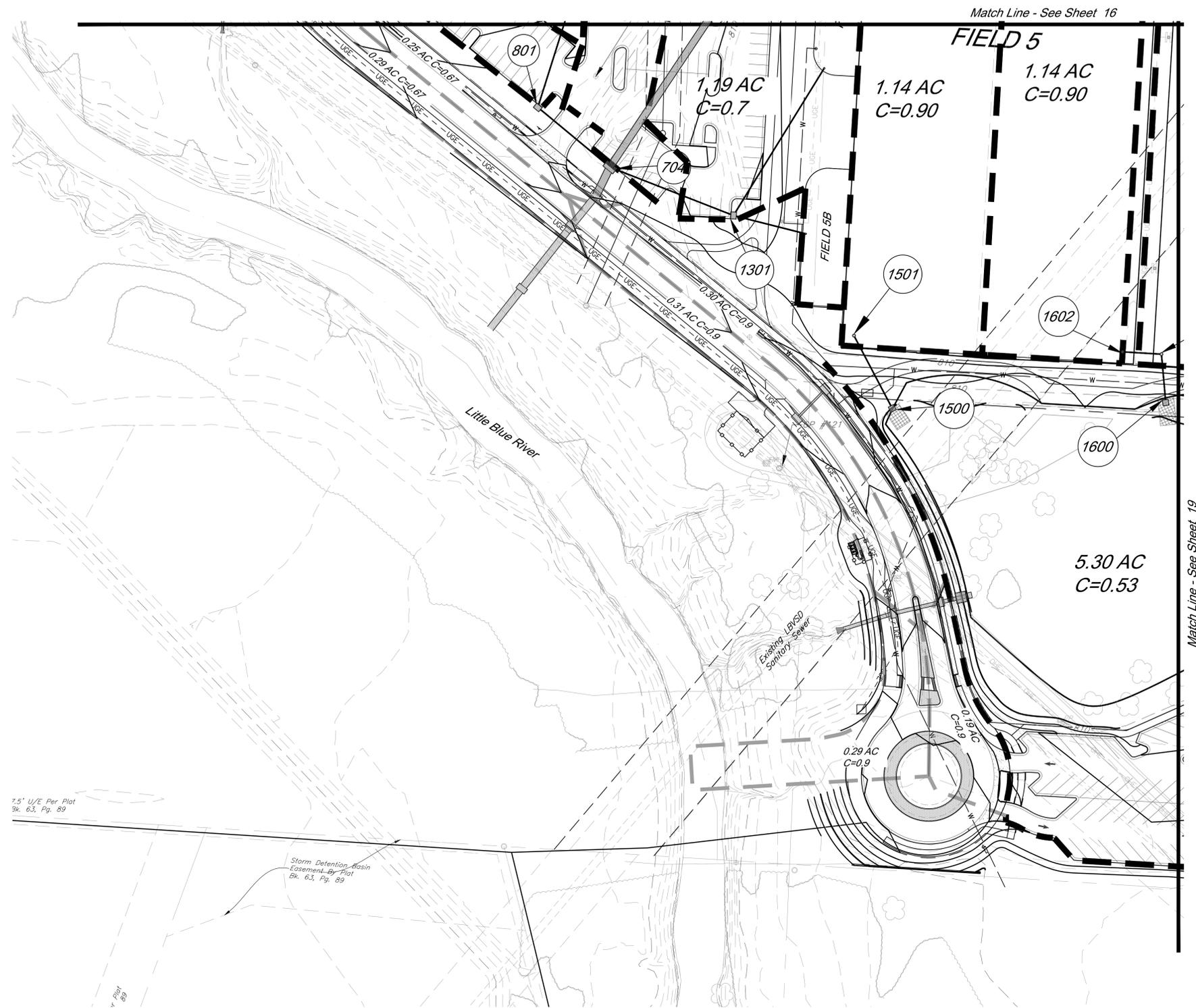


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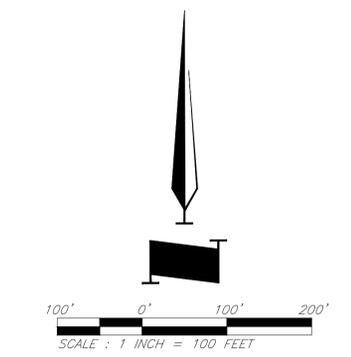
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7.5' U/E Per Plot
 Pl. 63, Pg. 89

Storm Detention Basin
 Easement by Plat
 Pl. 63, Pg. 89

- Legend**
- 800 Proposed Contours
 - 800 Existing Contour
 - Proposed Drainage Area
 - 0.28 Acres Drainage Area
 - Proposed Storm Sewer
 - Future Storm Sewer



Match Line - See Sheet 16

Match Line - See Sheet 19

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 Lenexa, KS 66219
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 317 SE Main
 Lee's Summit, MO 64083
 www.land3studio.com
 MO Certificate of Authority # 2008001860

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 2100 Central Street, Suite 01C
 Kansas City, MO 64108
 816.510.0438
 www.hoerschaudt.com
 MO Certificate of Authority # 201904088

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 8343 Lenexa Drive
 Lenexa, KS 66214
 913.742.5000
 www.hen-eng.com
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 7037 College Boulevard, Suite 415
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PROJECT:

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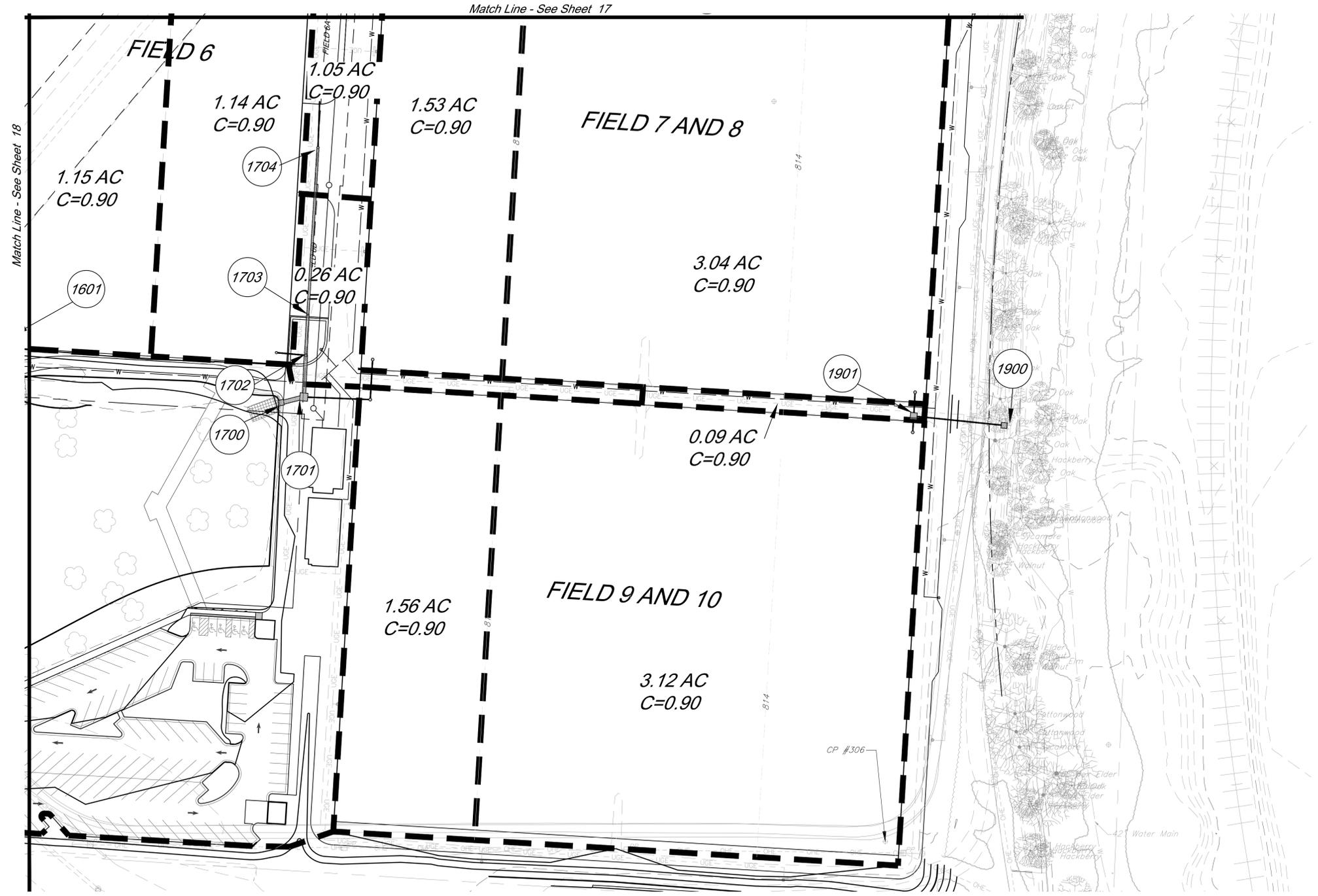


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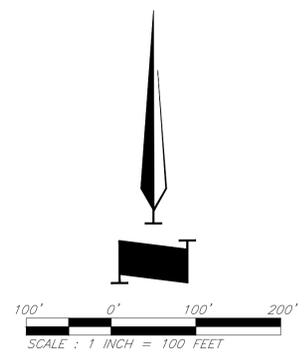
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18

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- Legend**
- Proposed Contours
 - Existing Contour
 - Proposed Drainage Area
 - Drainage Area
 - Proposed Storm Sewer
 - Future Storm Sewer



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 913.492.0400
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 MO Certificate of Authority # 000133

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 317 SE Main
 Lee's Summit, MO 64083
 www.land3studio.com
 MO Certificate of Authority # 2008001860

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 2100 Centink Street, Suite 01C
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 913.498.1550
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PROJECT:

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Field Storm Sewer Plans

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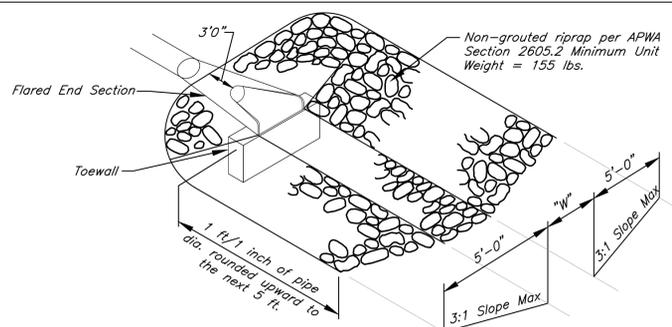
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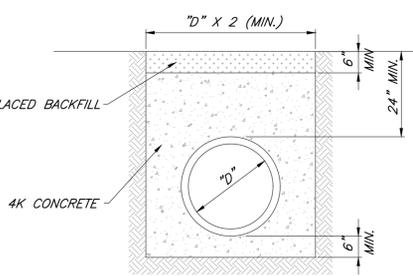
| Structures | | 10 Year Storm Culverts have been designed to the 100 year Storm | | | | | | | | | | Pipe Design | | | | | Design Checks | | | | | | | | | | Comments | | | | | | | | | |
|-------------------|------|---|----------------|-------------------|-------|-------|----------|-----------------|-------------------|----------------|---------------------------|-----------------------|----------------------|---------------------|---------------|-------------------|---------------|---------------|------------|--------------|------|----------------|-------------------------|--------------------------|---------------------|-------------------|----------|---------------------|------------------|----------------------------|------------------------------------|-----------------------------|--|--|--|--|
| From | To | Direct Area (acre) | Line In (acre) | Total Area (acre) | C | K | Tc (min) | Flow Time (min) | Intensity (in/hr) | Design Q (cfs) | Area Inlet Headwater (in) | Description | Pipe length (lin ft) | Pipe Slope Slope, % | Pipe dia (in) | Manning's n Value | Q full (cfs) | Pipe Area, sf | V full fps | Design V fps | Hw/D | outlet head, H | HW, Inlet Control, (ft) | HW, Outlet Control, (ft) | Inlet Top Elevation | upstream flowline | | downstream flowline | Invert Drop (ft) | Downstream water elevation | Hydraulic Grade Elev. (Calculated) | Hydraulic Grade (allowable) | | | | |
| Line 700 (100 Yr) | 710 | 17.12 | | 0.51 | 1.25 | 18.92 | | | 6.61 | 72.2 | | End Section | | | | | | | | | | | | | | | | | | | | | | | | |
| | 709 | 0.42 | | 0.80 | 1.25 | 18.92 | 0.07 | | 6.61 | 72.2 | | HDPE | 90.20 | 7.50 | 48 | 0.01 | 512.77 | 12.57 | 40.81 | 20.62 | 1.0 | 1.12 | 835.75 | 829.70 | N/A | 831.76 | 824.99 | | 828.59 | 835.75 | 836.00 | | | | | |
| | 708 | 0.22 | | 0.80 | 1.25 | 18.92 | 0.03 | | 6.61 | 74.8 | | Curb Inlet | | | | | | | | | | | | | | | | | | | | | | | | |
| | 707 | 0.00 | | 0.90 | 1.25 | 6.21 | | | 9.84 | 2.4 | | RCP | 36.50 | 5.00 | 48 | 0.013 | 322.06 | 12.57 | 25.63 | 20.84 | 1.0 | 0.88 | 828.59 | 824.03 | 834.22 | 824.49 | 822.67 | 0.5 | 823.15 | 828.59 | 832.39 | | | | | |
| | 706 | 0.00 | | 0.80 | 1.25 | 5.00 | | | 10.32 | 0.0 | | Curb Inlet | | | | | | | | | | | | | | | | | | | | | | | | |
| | 705 | 0.00 | 8.88 | 0.62 | 1.25 | 19.80 | 0.38 | | 6.46 | 133.2 | | RCP | 199.94 | 5.00 | 48 | 0.013 | 322.06 | 12.57 | 25.63 | 20.84 | 1.0 | 1.94 | 823.15 | 813.68 | 816.72 | 819.00 | 809.00 | 1 | 811.75 | 817.75 | 814.89 | | | | | |
| | 704 | 0.54 | 2.13 | 0.62 | 1.25 | 19.80 | 0.38 | | 6.46 | 133.2 | | Junction Box | | | | | | | | | | | | | | | | | | | | | | | | |
| | 703 | 0.25 | | 0.86 | 1.25 | 5.00 | | | 10.32 | 6.0 | | RCP | 239.94 | 0.96 | 60 | 0.013 | 255.87 | 19.63 | 13.03 | 11.60 | 0.8 | 0.72 | 809.94 | 809.10 | 814.35 | 806.00 | 803.70 | 0.5 | 808.38 | 808.38 | 813.02 | | | | | |
| | 702 | 0.29 | | 0.63 | 1.25 | 20.18 | 0.04 | | 6.40 | 147.9 | | RCP | 329.02 | 0.92 | 60 | 0.013 | 250.89 | 19.63 | 12.78 | 14.43 | 1.0 | 2.76 | 808.38 | 807.56 | 813.61 | 803.20 | 800.16 | 2.3 | 804.80 | 804.80 | 812.28 | | | | | |
| | 701 | 0.00 | | 0.90 | 1.25 | 5.00 | | | 10.32 | 2.9 | | Curb Inlet | | | | | | | | | | | | | | | | | | | | | | | | |
| 700 | | | 0.64 | 1.25 | 20.26 | 0.08 | | 6.39 | 151.5 | | RCP | 35.00 | 0.80 | 60 | 0.013 | 233.57 | 19.63 | 11.90 | 14.80 | 1.1 | 1.34 | 802.68 | 803.49 | 813.98 | 803.49 | 797.31 | 0.3 | 803.49 | 803.49 | 812.15 | | | | | | |
| 802 | 0.52 | | 0.80 | 1.00 | 5.00 | | | 7.35 | 3.1 | 4.1 | Nyloplast Dome Inlet | | | | | | | | | | | | | | | | | | | | | | | | | |
| 801 | 0.42 | | 0.52 | 0.80 | 1.00 | 5.00 | 0.16 | | 7.35 | 3.1 | HDPE | 86.60 | 1.99 | 18 | 0.01 | 19.32 | 1.77 | 10.93 | 9.07 | 0.7 | 0.22 | 811.80 | 810.00 | 816.06 | 810.68 | 808.95 | 0.5 | 809.79 | 809.79 | 814.23 | | | | | | |
| 904 | 0.87 | | 0.87 | 0.73 | 1.00 | 5.00 | 0.24 | | 7.35 | 4.7 | Curb Inlet | | | | | | | | | | | | | | | | | | | | | | | | | |
| 903 | 0.86 | 0.32 | 0.87 | 0.73 | 1.00 | 5.00 | 0.24 | | 7.35 | 4.7 | HDPE | 117.00 | 2.00 | 18 | 0.01 | 19.36 | 1.77 | 10.96 | 8.02 | 0.9 | 0.64 | 815.28 | 813.67 | 819.11 | 814.00 | 811.66 | | 813.03 | 815.28 | 817.78 | | | | | | |
| 902 | 0.41 | | 2.05 | 0.77 | 1.00 | 5.24 | 0.09 | | 7.28 | 11.5 | Curb Inlet | | | | | | | | | | | | | | | | | | | | | | | | | |
| 901 | 0.00 | 2.01 | 2.46 | 0.78 | 1.00 | 5.33 | 0.14 | | 7.25 | 13.8 | HDPE | 55.14 | 1.00 | 24 | 0.01 | 29.49 | 3.14 | 9.39 | 10.17 | 0.9 | 0.56 | 813.03 | 812.94 | 818.77 | 811.16 | 810.61 | 0.5 | 812.38 | 813.03 | 817.44 | | | | | | |
| 705 | | | 4.47 | 0.73 | 1.00 | 5.48 | 0.09 | | 7.21 | 23.5 | HDPE | 100.13 | 1.00 | 24 | 0.01 | 29.49 | 3.14 | 9.39 | 11.52 | 1.1 | 1.19 | 812.22 | 812.38 | 818.73 | 810.11 | 809.11 | 0.5 | 811.19 | 811.19 | 812.17 | | | | | | |
| 1301 | 1.19 | | 1.19 | 0.70 | 1.00 | 5.00 | 0.23 | | 7.35 | 6.1 | Curb Inlet | | | | | | | | | | | | | | | | | | | | | | | | | |
| 704 | | | 1.19 | 0.70 | 1.00 | 5.00 | 0.23 | | 7.35 | 6.1 | HDPE | 115.70 | 1.00 | 24 | 0.01 | 29.49 | 3.14 | 9.39 | 8.36 | 0.7 | 0.26 | 810.50 | 809.11 | 813.09 | 809.01 | 807.85 | | 808.85 | 808.85 | 811.26 | | | | | | |
| 1405 | 0.25 | | 0.25 | 0.90 | 1.00 | 7.54 | 0.30 | | 6.64 | 1.5 | 1.9 | Grate Inlet | | | | | | | | | | | | | | | | | | | | | | | | |
| 1404 | 0.14 | | 0.25 | 0.90 | 1.00 | 7.54 | 0.30 | | 6.64 | 1.5 | 1.2 | HDPE | 206.59 | 0.50 | 12 | 0.01 | 3.28 | 0.79 | 4.18 | 11.52 | 0.8 | 0.87 | 812.97 | 812.85 | 816.80 | 812.16 | 811.13 | | 811.98 | 812.97 | 815.47 | | | | | |
| 1403 | 0.03 | 2.30 | 0.39 | 0.90 | 1.00 | 7.84 | 0.05 | | 6.57 | 2.3 | | Grate Inlet | | | | | | | | | | | | | | | | | | | | | | | | |
| 1402 | 0.53 | | 2.72 | 0.90 | 1.00 | 7.89 | 0.06 | | 6.56 | 16.1 | | HDPE | 36.26 | 0.50 | 24 | 0.01 | 20.85 | 3.14 | 6.64 | 11.52 | 0.7 | 0.02 | 811.49 | 811.98 | 816.58 | 810.13 | 809.94 | 1 | 811.96 | 811.96 | 815.25 | | | | | |
| 1401 | 0.00 | 1.16 | 3.25 | 0.90 | 1.00 | 7.96 | 0.41 | | 6.54 | 19.1 | 3.4 | Grate Inlet | | | | | | | | | | | | | | | | | | | | | | | | |
| 705 | | | 4.41 | 0.90 | 1.00 | 8.37 | 0.03 | | 6.44 | 25.6 | 0.0 | HDPE | 40.79 | 0.50 | 24 | 0.01 | 20.85 | 3.14 | 6.64 | 10.67 | 1.2 | 0.94 | 811.82 | 811.96 | 815.40 | 809.44 | 809.24 | 0.5 | 811.02 | 811.96 | 814.07 | | | | | |
| 1501 | 0.00 | 1.14 | 1.14 | 0.90 | 1.00 | 5.00 | 0.20 | | 7.35 | 0.0 | | Nyloplast Junction | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | | | 1.14 | 0.90 | 1.00 | 5.00 | 0.20 | | 7.35 | 7.5 | | HDPE | 71.58 | 0.50 | 18 | 0.01 | 9.68 | 1.77 | 5.48 | 6.04 | 1.2 | 1.15 | 812.09 | 811.90 | 815.02 | 810.36 | 810.00 | | 810.75 | 810.75 | 813.69 | | | | | |
| 1602 | 0.00 | 1.14 | 1.14 | 0.90 | 1.00 | 5.00 | 0.09 | | 7.35 | 0.0 | | Nyloplast Junction | | | | | | | | | | | | | | | | | | | | | | | | |
| 1601 | 0.00 | 1.15 | 2.29 | 0.90 | 1.00 | 5.09 | 0.09 | | 7.33 | 15.1 | | HDPE | 34.00 | 0.40 | 24 | 0.01 | 18.65 | 3.14 | 5.94 | 6.64 | 0.8 | 0.19 | 812.17 | 812.62 | 815.05 | 810.61 | 810.47 | 0.3 | 812.43 | 812.43 | 813.71 | | | | | |
| 1704 | 1.05 | | 1.05 | 0.90 | 1.00 | 5.00 | 0.34 | | 7.35 | 6.9 | 5.3 | Nyloplast Grate Inlet | | | | | | | | | | | | | | | | | | | | | | | | |
| 1703 | 0.00 | | 1.05 | 0.90 | 1.00 | 5.00 | 0.34 | | 7.35 | 6.9 | | HDPE | 150.22 | 0.50 | 18 | 0.01 | 9.68 | 1.77 | 5.48 | 7.39 | 1.1 | 1.74 | 813.85 | 814.87 | 814.93 | 812.23 | 811.48 | | 813.13 | 814.87 | 813.61 | | | | | |
| 1702 | 0.26 | 1.14 | 2.45 | 0.90 | 1.00 | 5.34 | 0.05 | | 7.25 | 6.9 | | Nyloplast Junction | | | | | | | | | | | | | | | | | | | | | | | | |
| 1701 | 0.00 | 3.09 | 2.45 | 0.90 | 1.00 | 5.39 | 0.06 | | 7.25 | 16.0 | 1.9 | Nyloplast Dome Inlet | | | | | | | | | | | | | | | | | | | | | | | | |
| 1700 | | | 5.54 | 0.90 | 1.00 | 5.45 | 0.04 | | 7.22 | 36.0 | | HDPE | 37.49 | 0.50 | 30 | 0.01 | 37.81 | 4.91 | 7.70 | 10.67 | 0.8 | 0.32 | 812.39 | 812.97 | 814.50 | 810.29 | 810.11 | 0.5 | 812.65 | 812.65 | 813.17 | | | | | |
| 1901 | 0.09 | 6.28 | 6.28 | 0.90 | 1.00 | 5.79 | 0.16 | | 7.12 | 0.6 | 0.0 | Grate Inlet | | | | | | | | | | | | | | | | | | | | | | | | |
| 1900 | | | 6.28 | 0.90 | 1.00 | 5.79 | 0.16 | | 7.12 | 40.2 | | HDPE | 21.08 | 0.50 | 36 | 0.013 | 47.29 | 7.07 | 6.69 | 8.29 | 1.0 | 0.62 | 812.65 | 811.62 | 814.91 | 809.61 | 809.50 | | 811.00 | 811.00 | 813.58 | | | | | |
| 2001 | 0.32 | | 0.32 | 0.80 | 1.00 | 5.00 | 0.57 | | 7.35 | 1.9 | 3.0 | Dome Area Inlet | | | | | | | | | | | | | | | | | | | | | | | | |
| 2000 | | | 0.32 | 0.80 | 1.00 | 5.00 | 0.57 | | 7.35 | 1.9 | | HDPE | 262.90 | 2.00 | 12 | 0.01 | 6.57 | 0.79 | 8.36 | 7.65 | 0.9 | 1.73 | 818.41 | 814.48 | 822.40 | 817.51 | 812.25 | | 812.75 | 812.75 | 821.07 | | | | | |
| 2206 | 0.32 | | 0.32 | 0.90 | 1.00 | 5.00 | 0.40 | | 7.35 | 2.1 | 2.4 | Grate Inlet | | | | | | | | | | | | | | | | | | | | | | | | |
| 2205 | 0.41 | | 0.32 | 0.90 | 1.00 | 5.00 | 0.40 | | 7.35 | 2.1 | 2.9 | HDPE | 139.10 | 1.00 | 15 | 0.01 | 8.42 | 1.23 | 6.22 | 5.84 | 0.8 | 0.39 | 812.25 | 811.33 | 816.68 | 811.29 | 809.90 | | 810.94 | 812.25 | 815.35 | | | | | |
| 2204 | 0.00 | 2.26 | 2.99 | 0.90 | 1.00 | 5.40 | 0.28 | | 7.23 | 4.8 | 0.0 | Grate Inlet | | | | | | | | | | | | | | | | | | | | | | | | |

G:\12720\12720\Production Drawings\field storm plans\127200220.dwg Layout: 22 Storm Sewer Details -- Friday, May 22, 2020, 10:21am -- Copyright 2020, George Butler, Associates, Inc. Architect: 00212, Professional Engineer 000133, Professional Land Surveyor 000059
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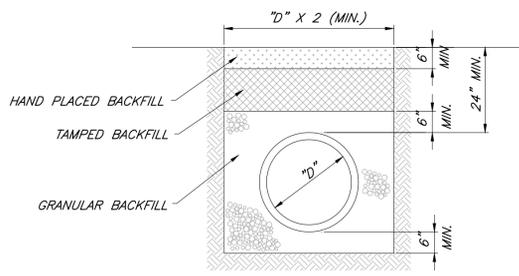


OUTLET EROSION PROTECTION - RIPRAP

Not to Scale



CONCRETE ENCASEMENT CLASS A



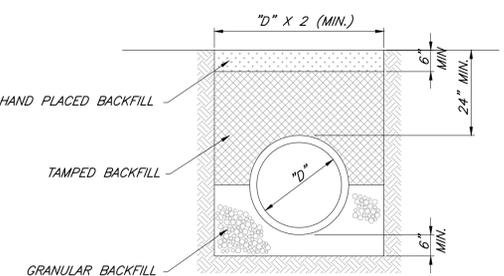
HDPE/PVC PIPE BEDDING CLASS C

NOTES:

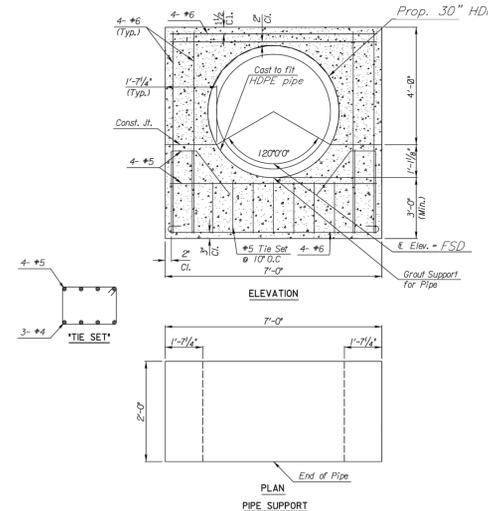
1. GRANULAR FILL SHALL BE 1/2" CLEAN ROCK, PLACED IN 6" LIFTS AND COMPACTED BY SLICING WITH A SHOVEL.
2. TAMPED FILL SHALL BE FINELY DIVIDED, JOB EXCAVATED MATERIAL FREE OF DEBRIS, ORGANIC MATERIAL, AND STONES, COMPACTED TO TYPE AA MR-5 COMPACTION.
3. HAND PLACED FILL SHALL BE FINELY DIVIDED MATERIAL, FREE OF DEBRIS AND STONES, COMPACTED TO TYPE AA MR-5 COMPACTION.
4. ALL PIPE SHALL BE INSPECTED PRIOR TO BACKFILL. ALL PIPE COVERED PRIOR TO INSPECTION SHALL BE UNCOVERED AT THE CONTRACTORS EXPENSE.

PIPE BEDDING DETAILS

No Scale

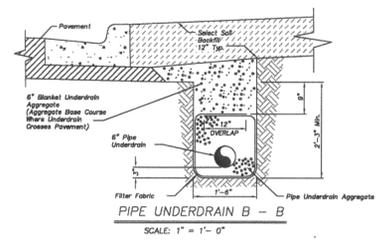


FIRST CLASS BEDDING (RCP) CLASS B



LINE 1700 END SECTION

No Scale

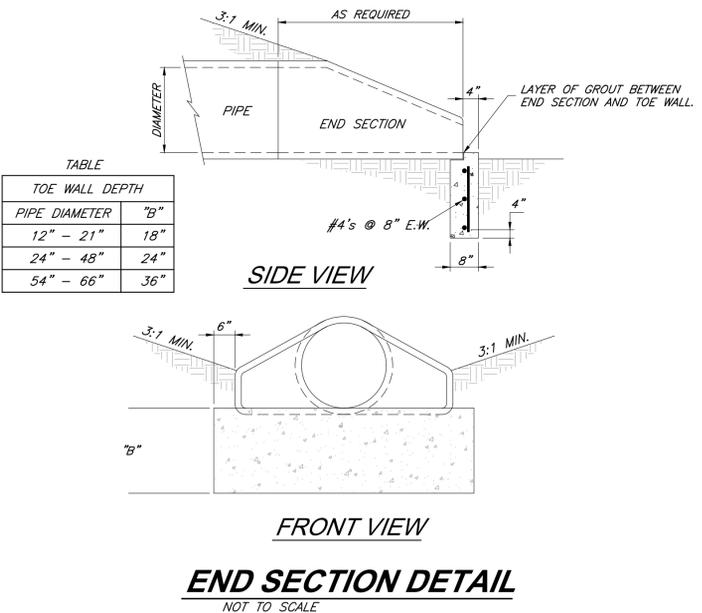


Underdrain Notes:

1. All roadway excavation in rock will be undercut no less than 12" for the full width of the roadway as shown.
2. In areas where underdrains are not required, undercut and overbridge a minimum and shall be brought to within 6" of the subgrade line with properly compacted crushed stone, shot rock, and/or road metal. The remaining 6" shall conform to Standard Specifications Section 2202.
3. Layers of earth or shale shall not be permitted for backfill up to the bottom of the crushed stone.
4. A minimum of 12" of select soil (spread) shall be placed on exposed rock and/or shale outside the limits of the roadway. All rock and shale slopes shall be benched @ maximum 2' vertical intervals prior to placement of select soil.
5. Proposed underdrain pipe layout, bench elevations, inlet connection points, and details shall be approved prior to construction by the City Engineer.
6. Where pipe underdrains are used, of underdrain outlet pipes shall be solid wall with water-tight joints. All outlet pipes shall be tied into the nearest storm sewer line as approved. Where edge underdrains are used, of underdrain outlet pipes shall be solid wall with manufacturer joints approved by the City Engineer. All connections between pipe and edge underdrains or curb inlets shall be made with 2' minimum length of pipe.
7. All underdrain pipes shall be installed at a minimum slope of 1%.
8. Underdrain pipes shall be installed with the perforations pointed down.
9. Blanket underdrains shall be placed on bedrock unless otherwise directed by the City Engineer. Underdrain and overbridge in trenches and shall be brought to within 12" of the subgrade line with properly compacted crushed stone, shot rock and/or road metal.
10. The Contractor may, at his option, use either pipe underdrain or edge underdrain, but shall not mix underdrain types within any underdrain system.
11. All edge underdrains shall be held in the center of the trench by mechanical methods while placing granular backfill. See detail B-B sheet. Alternate method may be used with prior approval by the City Engineer.
12. Blanket underdrain aggregate, pipe underdrain aggregate, pipe underdrain, edge underdrain and outlet pipe shall conform to Standard Specifications Section 2203.6

END SECTION NOTES:

1. THE DEPTH OF THE TOE WALL SHALL BE PER TABLE. IF BEDROCK IS ENCOUNTERED A MINIMUM OF 12" INTO BEDROCK IS REQUIRED.
2. ALL CONCRETE SHALL BE KOMMB-4K.



Section 2721

Engineered Surface Drainage Products

GENERAL
 PVC surface drainage inlets shall include the drain basin type as indicated on the contract drawing and referenced within the contract specifications. The ductile iron grates for each of these fittings are to be considered an integral part of the surface drainage inlet and shall be furnished by the same manufacturer. The surface drainage inlets shall be as manufactured by Nyloplast a division of Advanced Drainage Systems, Inc., or prior approved equal.

MATERIALS
 The drain basins required for this contract shall be manufactured from PVC pipe stock, utilizing a thermoforming process to reform the pipe stock to the specified configuration. The drainage pipe connection stubs shall be manufactured from PVC pipe stock and formed to provide a watertight connection with the specified pipe system. This joint tightness shall conform to ASTM D3212 for joints for drain and sewer plastic pipe using flexible elastomeric seals. The flexible elastomeric seals shall conform to ASTM F477. The pipe bell spigot shall be joined to the main body of the drain basin or catch basin. The raw material used to manufacture the pipe stock that is used to manufacture the main body and pipe stubs of the surface drainage inlets shall conform to ASTM D1784 cell class 12454.

The grates and frames furnished for all surface drainage inlets shall be ductile iron for structure sizes 8", 10", 12", 15", 18", 24", 30" and 36" and shall be made specifically for each basin so as to provide a round bottom flange that closely matches the diameter of the surface drainage inlet. Grates for drain basins shall be capable of supporting various wheel loads as specified by Nyloplast. 12" and 15" square grates will be hinged to the frame using pins. Ductile iron used in the manufacture of the castings shall conform to ASTM A536 grade 70-50-05. Grates and covers shall be provided painted black.

INSTALLATION
 The specified PVC surface drainage inlet shall be installed using conventional flexible pipe bedding materials and procedures. The backfill material shall be granular material meeting the requirements of class 1, class 2, or class 3 material as defined in ASTM D2321. Bedding and backfill for surface drainage inlets shall be well placed and compacted uniformly in accordance with ASTM D2321. The drain basin body will be cut at the time of the final grade. No brick, stone or concrete block will be required to set the grate to the final grade height. For load rated installations, a concrete slab shall be poured under and around the grate and frame. The concrete slab must be designed taking into consideration local soil conditions, traffic loading, and other applicable design factors. For other installation considerations such as migration of fumes, ground water, and soft foundations refer to ASTM D2321 guidelines.

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| | PROJECT NO. NAME | TITLE | | |
| | DWG SIZE: A | SCALE: 1:1 | SHEET: 1 OF 1 | DWG NO.: 7061110-011 REV: J |

NYLOPLAST DRAIN BASIN WITH STANDARD GRATE

1. 8" - 30" STANDARD GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2. 12" - 30" FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
3. 8" & 10" STANDARD GRATES FIT DIRECTLY ONTO DRAIN BASINS WITH THE USE OF A PVC BODY TOP. SEE DRAWING NO. 7061110-045.
4. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 8" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 705-10-065.
5. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D2321 FOR CORRUGATED HDPE (ADS N-12HANCOR DUAL WALL).
6. 8" & 10" STANDARD GRATES FIT DIRECTLY ONTO DRAIN BASINS WITH THE USE OF A PVC BODY TOP. SEE DRAWING NO. 7061110-045.
7. ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 700-110-012.
8. 12" - 30" STANDARD GRATES SHALL MEET H-20 LOAD RATING.
9. 8" & 10" STANDARD GRATES ARE RATED FOR LIGHT DUTY APPLICATIONS ONLY. NO CONCRETE COLUMN NEEDED FOR LIGHT DUTY BATING.

| | | | | |
|---|--------------------------------|----------------|---|---|
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| | PROJECT NO. NAME | TITLE | | |
| | DWG SIZE: A | SCALE: 1:40 | SHEET: 1 OF 1 | DWG NO.: 7061110-144 REV: J |

GBA
 7801 Renner Boulevard
 Lenexa, KS 66219
 913.492.0400
 www.gba.com
 MO Certificate of Authority # 000133

LANDS Studio, LLC
 317 SE Main
 Lee's Summit, MO 64083
 www.landsstudio.com
 MO Certificate of Authority # 200801860

Hoerr Schaudt Landscape Architects
 2100 Centra Street, Suite 01C
 Kansas City, MO 64108
 816.510.0438
 www.hoerschaudt.com
 MO Certificate of Authority # 2019004088

HENDERSON ENGINEERS, Inc.
 8345 Lenexa Drive
 Lenexa, KS 66214
 913.742.5000
 www.heng.com
 Missouri Certificate of Authority # 000556

FINKLE + WILLIAMS Architecture
 7037 College Boulevard, Suite 415
 Overland Park, KS 66211
 913.498.1550
 www.finklewilliams.com
 Missouri Certificate of Authority # F00453304

PROJECT:

Paragon Star Soccer Complex

Soccer Complex Storm Sewer
 1401 NW View High Dr, Lee's Summit, MO 64081
 Field Storm Sewer Plans

ISSUE:

10/17/19 City Comments
 3/13/20 City Comments
 4/28/20 City Comments
 5/22/20 City Comments

PROFESSIONAL SEAL:

DRAWING TITLE:

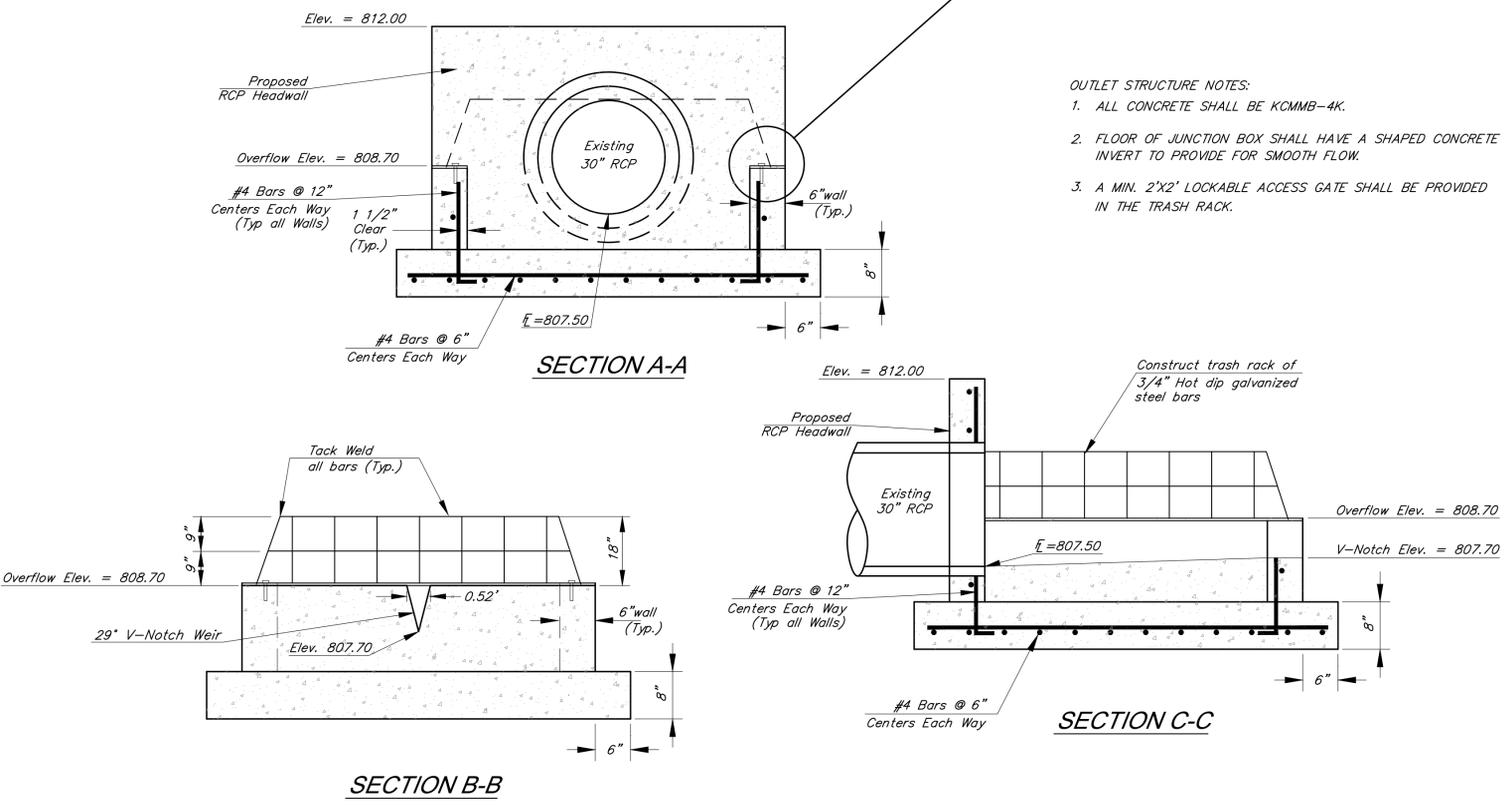
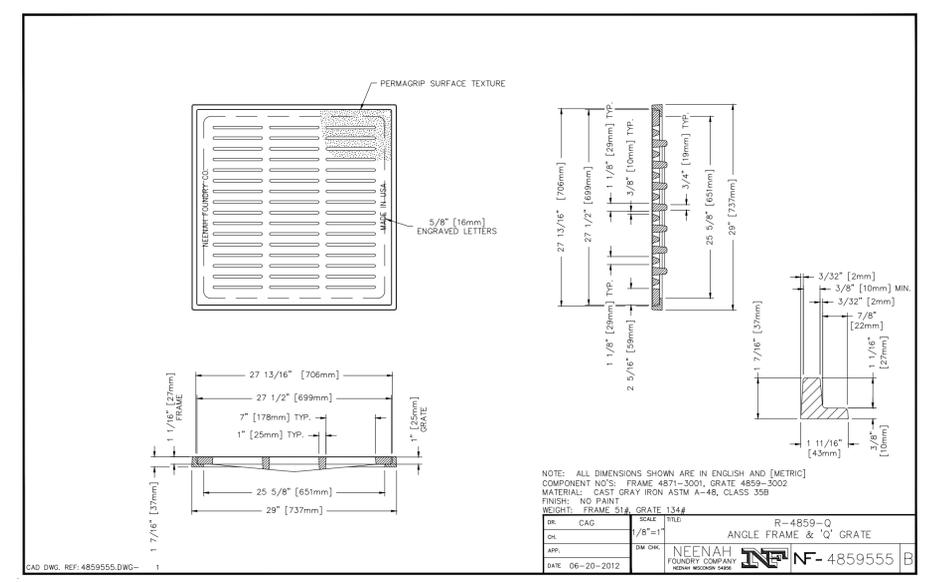
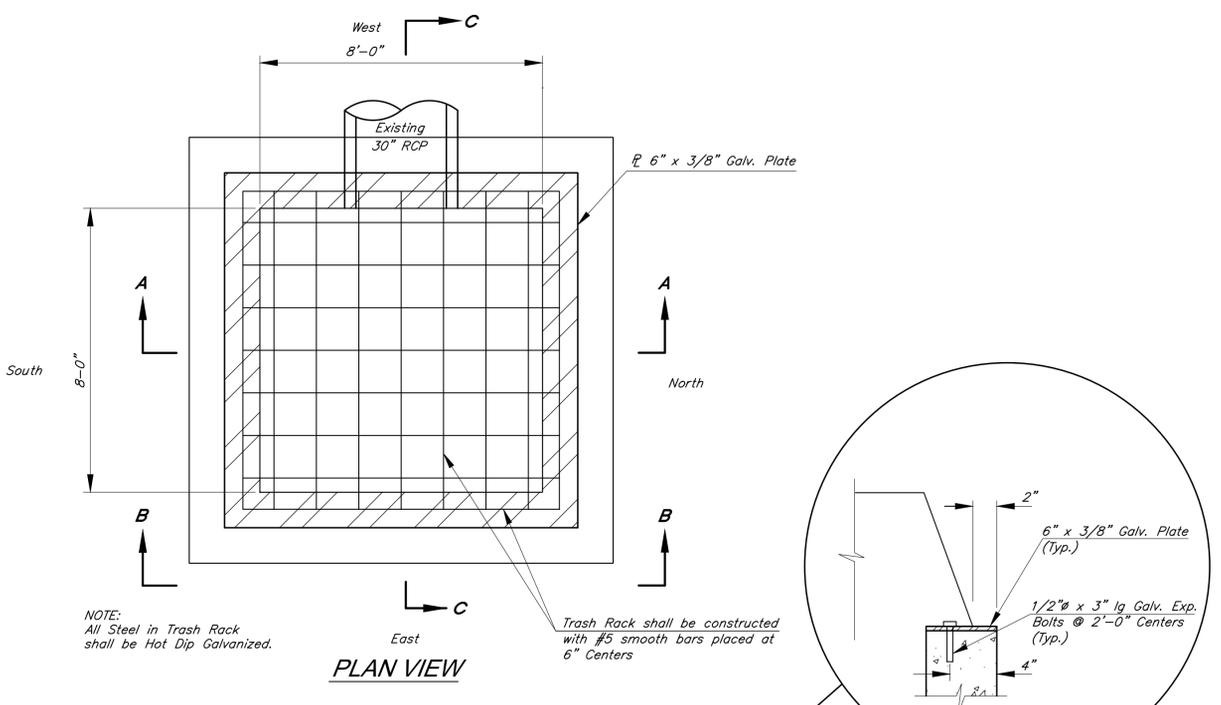
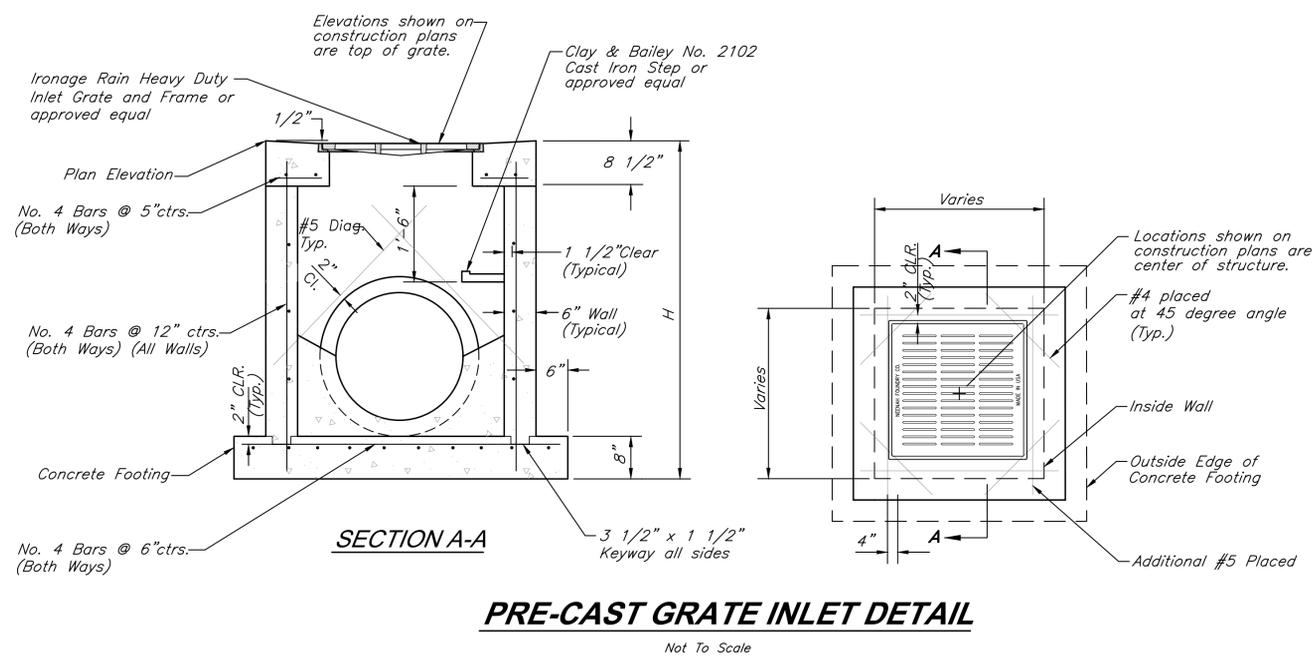
Storm Sewer Details

JOB NO: 1197 SCALE: DATE: 05.22.2020 DRAWN BY: GBA SHEET NO:

22

GBA PN 12720.09

G:\12720\Civil\Production Drawings\field storm plans\12720C2200.dwg Layout: 23 Storm Sewer Details -- Friday, May 22, 2020, 10:21am -- Copyright 2020, George Butler, Associates, Inc. Architect: 00212, Professional Engineer 000133, Professional Land Surveyor 000059
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- OUTLET STRUCTURE NOTES:**
- ALL CONCRETE SHALL BE KOMMB-4K.
 - FLOOR OF JUNCTION BOX SHALL HAVE A SHAPED CONCRETE INVERT TO PROVIDE FOR SMOOTH FLOW.
 - A MIN. 2'X2' LOCKABLE ACCESS GATE SHALL BE PROVIDED IN THE TRASH RACK.

GBA
1981 Rainier Boulevard
Lenexa, KS 66219
913.492.0400
www.gbaTEAM.com
MO Certificate of Authority # 000133

LAND3 Studio, LLC
317 SE Main
Lee's Summit, MO 64083
www.land3studio.com
MO Certificate of Authority # 2008001860

Hoerr Schaudt Landscape Architects
2100 Central Street, Suite 01C
Kansas City, MO 64108
816.510.0438
www.hoerschaudt.com
MO Certificate of Authority # 201904068

HENDERSON ENGINEERS, Inc.
8345 Lenexa Drive
Lenexa, KS 66214
913.742.5000
www.he-eng.com
Missouri Certificate of Authority # 000556

FINKLE + WILLIAMS Architecture
7037 College Boulevard, Suite 415
Overland Park, KS 66211
913.498.1550
www.finklewilliams.com
Missouri Certificate of Authority # F00453304

PROJECT:

Paragon Star Soccer Complex
Soccer Complex Storm Sewer
1401 NW View High Dr, Lee's Summit, MO 64081
Field Storm Sewer Plans

ISSUE:

| | |
|----------|---------------|
| 10/17/19 | City Comments |
| 3/13/20 | City Comments |
| 4/28/20 | City Comments |
| 5/22/20 | City Comments |



DRAWING TITLE:

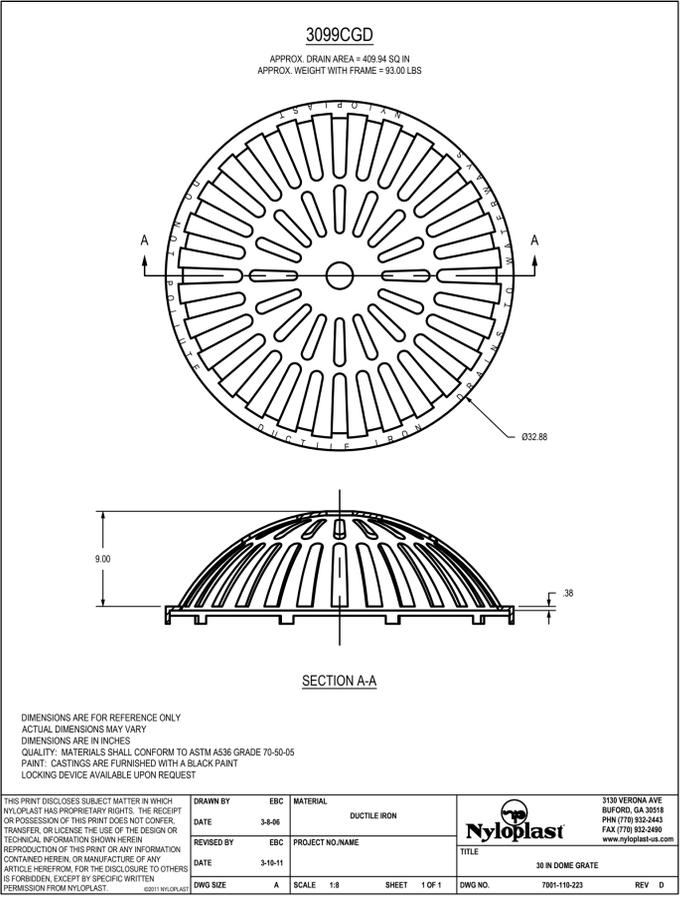
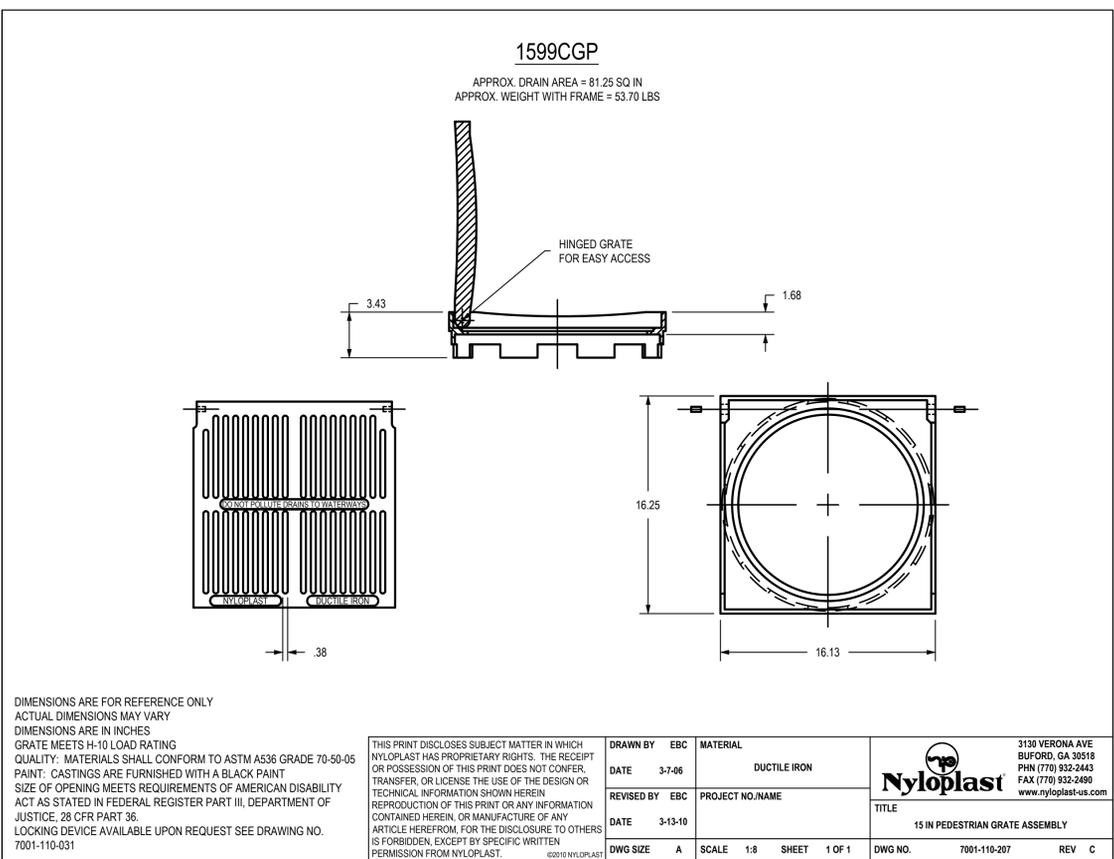
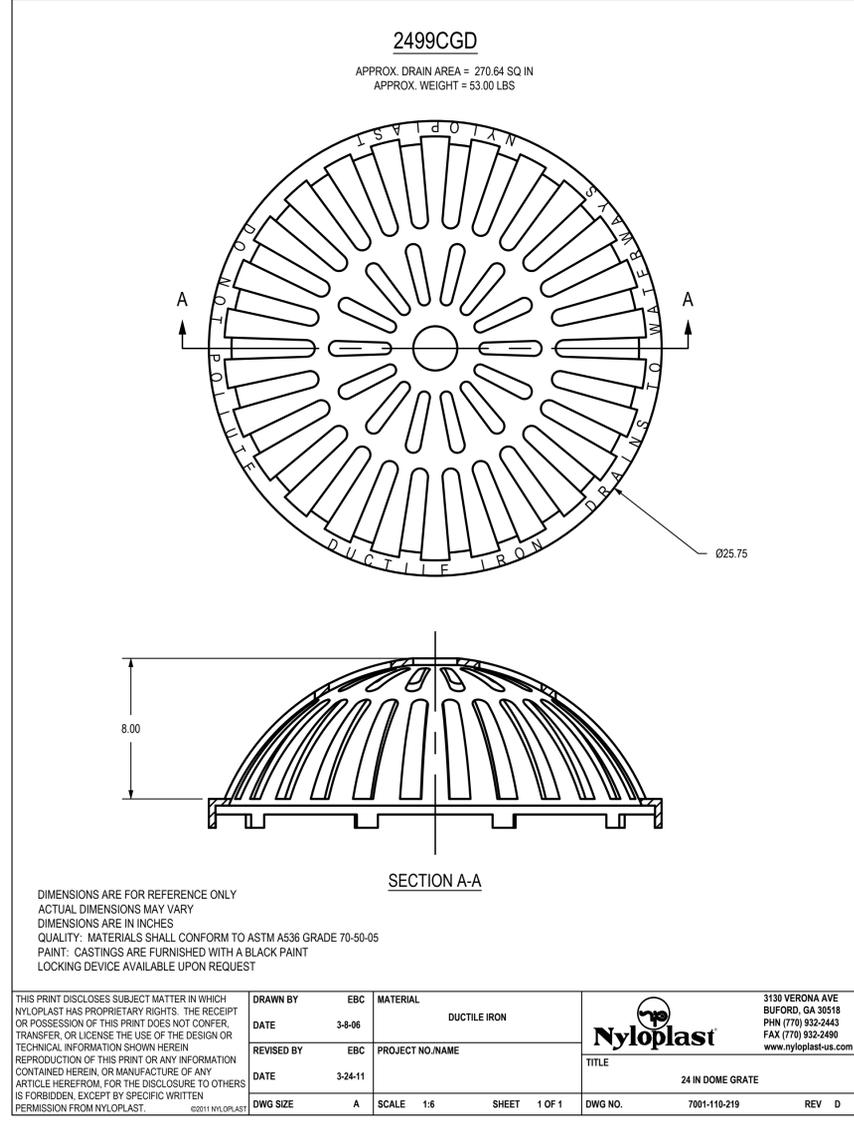
Storm Sewer Details

JOB NO: 1197 SCALE:

DATE: 05.22.2020 DRAWN BY: GBA

SHEET NO:

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 Lenexa, KS 66219
 913.492.0400
 www.gbafirm.com
 MO Certificate of Authority # 000133

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 317 SE Main
 Lee's Summit, MO 64083
 www.land3studio.com
 MO Certificate of Authority # 2008001860

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 Kansas City, MO 64108
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 Lenexa, KS 66214
 913.742.5000
 www.hen-eng.com
 Missouri Certificate of Authority # 000556

FINKLE + WILLIAMS Architecture
 7037 College Boulevard, Suite 415
 Overland Park, KS 66211
 913.498.1550
 www.finklewilliams.com
 Missouri Certificate of Authority # F00453304

PROJECT:

Paragon Star Soccer Complex

Soccer Complex Storm Sewer
 1401 NW View High Dr, Lee's Summit, MO 64081
 Field Storm Sewer Plans

ISSUE:

10/17/19 City Comments
 3/13/20 City Comments
 4/28/20 City Comments
 5/22/20 City Comments



DRAWING TITLE:

Storm Sewer Details

JOB NO: 1197 SCALE:

DATE: 05.22.2020 DRAWN BY: GBA

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1899CGC
APPROX. WEIGHT WITH FRAME = 68.50 LBS

DIMENSIONS ARE FOR REFERENCE ONLY
ACTUAL DIMENSIONS MAY VARY
DIMENSIONS ARE IN INCHES
GRATE MEETS H-20 LOAD RATING
QUALITY: MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70-50-05
PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT
LOCKING DEVICE AVAILABLE UPON REQUEST SEE DRAWING NO. 7001-110-027

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| DATE | 3-8-06 | PROJECT NO./NAME | | |
| REVISED BY | EBC | TITLE | 18 IN SOLID COVER ASSEMBLY - TYPE C | |
| DATE | 3-13-10 | DWG NO. | 7001-110-214 | REV C |
| DWG SIZE | A | SCALE | 1:10 | SHEET 1 OF 1 |

2499CGC
APPROX. WEIGHT WITH FRAME = 138.00 LBS

DIMENSIONS ARE FOR REFERENCE ONLY
ACTUAL DIMENSIONS MAY VARY
DIMENSIONS ARE IN INCHES
GRATE MEETS H-20 LOAD RATING
QUALITY: MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70-50-05
PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT
LOCKING DEVICE AVAILABLE UPON REQUEST SEE DRAWING NO. 7001-110-025

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| DATE | 3-8-06 | PROJECT NO./NAME | | |
| REVISED BY | EBC | TITLE | 24 IN SOLID COVER ASSEMBLY - TYPE B | |
| DATE | 3-13-10 | DWG NO. | 7001-110-218 | REV C |
| DWG SIZE | A | SCALE | 1:10 | SHEET 1 OF 1 |

2499CGP
APPROX. DRAIN AREA = 164.10 SQ IN
APPROX. WEIGHT WITH FRAME = 99.50 LBS

DIMENSIONS ARE FOR REFERENCE ONLY
ACTUAL DIMENSIONS MAY VARY
DIMENSIONS ARE IN INCHES
GRATE MEETS H-10 LOAD RATING
QUALITY: MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70-50-05
PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT
SIZE OF OPENINGS MEETS REQUIREMENTS OF AMERICAN DISABILITY ACT AS STATED IN FEDERAL REGISTER PART III, DEPARTMENT OF JUSTICE, 28 CFR PART 36.
LOCKING DEVICE AVAILABLE UPON REQUEST SEE DRAWING NO. 7001-110-023

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| DATE | 3-8-06 | PROJECT NO./NAME | | |
| REVISED BY | EBC | TITLE | 24 IN PEDESTRIAN GRATE ASSEMBLY - TYPE B | |
| DATE | 3-13-10 | DWG NO. | 7001-110-216 | REV C |
| DWG SIZE | A | SCALE | 1:10 | SHEET 1 OF 1 |

GBA
 7801 Renner Boulevard
 Lenexa, KS 66219
 913.492.0400
 www.gbateam.com
 MO Certificate of Authority # 000133

LAND3 Studio, LLC
 317 SE Main
 Lee's Summit, MO 64063
 www.land3studio.com
 MO Certificate of Authority # 2008001860

Hoerr Schaudt Landscape Architects
 2100 Central Street, Suite 01C
 Kansas City, MO 64108
 816.510.0438
 www.hoerschaudt.com
 MO Certificate of Authority # 2019004088

HENDERSON ENGINEERS, Inc.
 8345 Lenexa Drive
 Lenexa, KS 66214
 913.742.5000
 www.heng.com
 Missouri Certificate of Authority # 000556

FINKLE + WILLIAMS Architecture
 7807 College Boulevard, Suite 415
 Overland Park, KS 66211
 913.498.1550
 www.finklewilliams.com
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| 4/28/20 | City Comments |
| 5/22/20 | City Comments |
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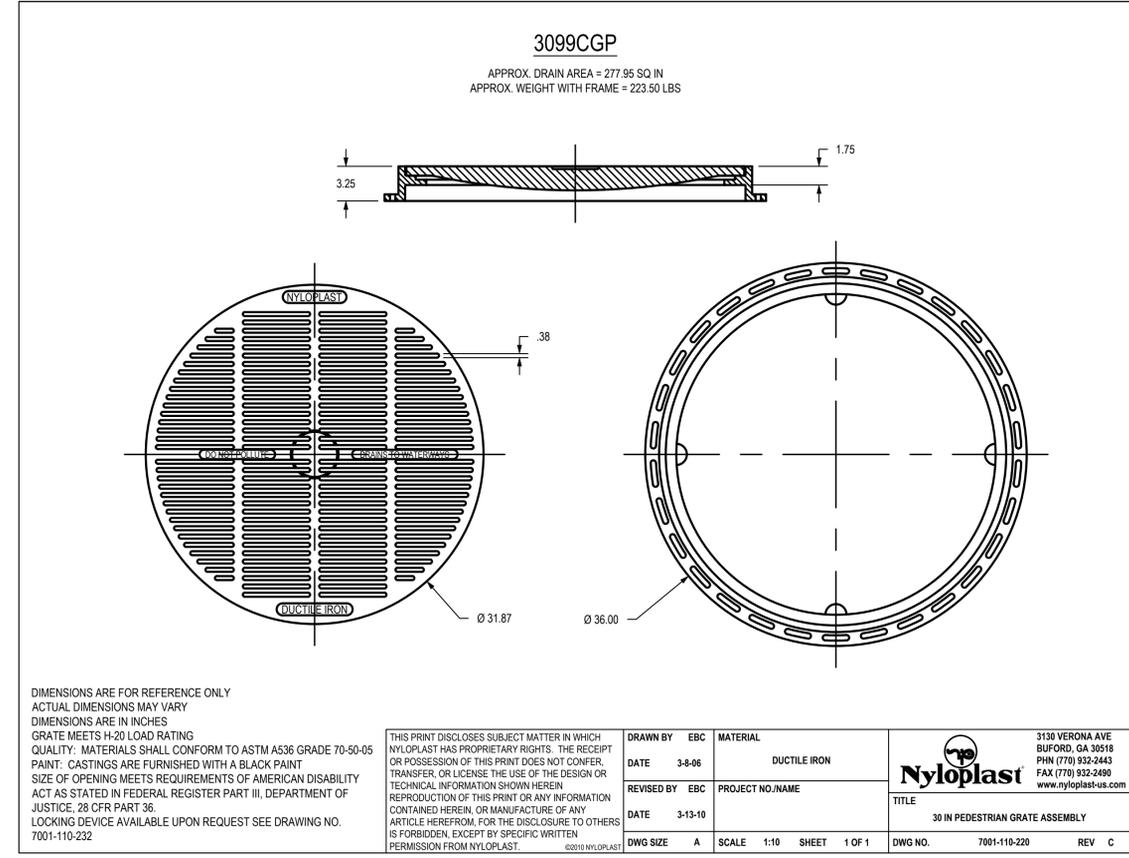
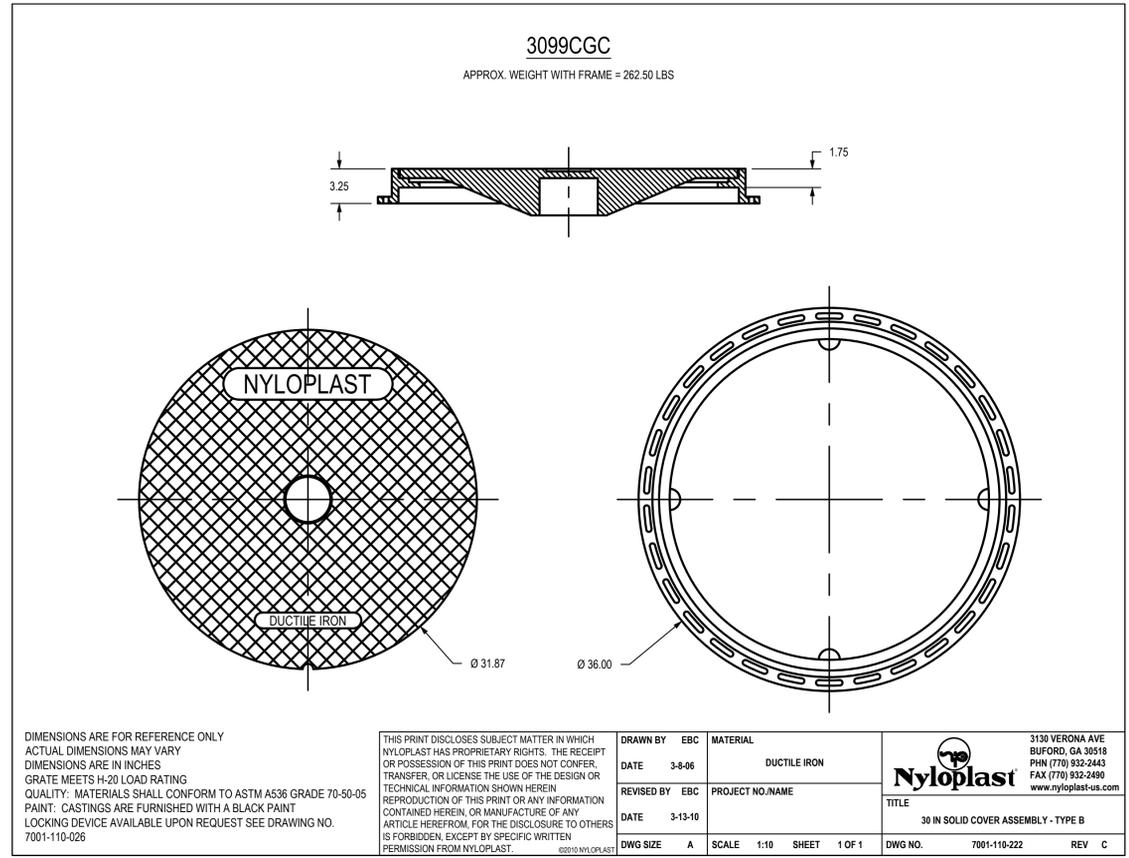
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DATE: 05.22.2020 DRAWN BY: GBA

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JOB NO: 1197 SCALE:

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