CIVIL ENGINEERING - REAL ESTATE CONSULTING - PROJECT MANAGEMENT ILLINOIS PROFESSIONAL DESIGN FIRM #184-006370 LIMITATION OF WARRANTY OF ENGINEER'S

HE ENGINEER AND HIS CONSULTANTS DO NOT WARRANT OR GUARANTEE THE ACCURACY AN F SUCH CONDITIONS SHALL ABSOLVE THE ENGINEER FROM ANY RESPONSIBILITY FOR T HE ENGINEER. OR IN CONTRADICTION TO THE ENGINEER'S DELIVERABLES OR RECOMMENDATIONS

LEGEND

	_	
	EXISTING	PROPOSED
SANITARY MANHOLE	\bigcirc	•
STORM MANHOLE	©	•
CATCH BASIN	0	•
INLET		
PRECAST FLARED END SECTION	\triangleright	>
CONCRETE HEADWALL		>
VALVE VAULT	\otimes	$oldsymbol{\Theta}$
VALVE BOX	Ħ	
FIRE HYDRANT	Þ	>
BUFFALO BOX	Φ	•
CLEANOUT	0	•
SANITARY SEWER	——	
FORCE MAIN		
STORM SEWER		
WATER MAIN		
CONSTRUCT WATER MAIN UNDER SEWER		
GRANULAR TRENCH BACKFILL		
STREET LIGHT	\rightleftharpoons	•
ELECTRICAL CABLE	—— E——	——Е—
2" CONDUIT ENCASEMENT		
ELECTRICAL TRANSFORMER OR PEDESTAL	E	
POWER POLE	-0-	
STREET SIGN	Þ	þ
GAS MAIN	———G——	—— G ——
TELEPHONE LINE	——T——	—— Т ——
CONTOUR	749	749
SPOT ELEVATION	×(750.00)	×750.00
WETLANDS	—·—·—·	
FLOODWAY		
FLOODPLAIN		
HIGH WATER LEVEL (HWL)		
NORMAL WATER LEVEL (NWL)		
DIRECTION OF SURFACE FLOW	-	-
DITCH OR SWALE		-
OVERFLOW RELIEF ROUTING		
SLOPE BANK	V	
TREE WITH TRUNK SIZE	* 6" 6"	
SOIL BORING	B-0	-B-1
TOPSOIL PROBE		— ↓ T−1
FENCE LINE, WIRE OR SILT		×
FENCE LINE, CHAIN LINK OR IRON		<u> </u>
FENCE LINE, WOOD OR PLASTIC		———
CONCRETE SIDEWALK		
CURB AND GUTTER		
DEPRESSED CURB		
REVERSE PITCH CURB & GUTTER		

ABBREVIATIONS

EASEMENT LINE

ADDICEVIATIONS						
BL	BASE LINE	NWL	NORMAL WATER LEVEL			
С	LONG CHORD OF CURVE	PC	POINT OF CURVATURE			
C & G	CURB AND GUTTER	PT	POINT OF TANGENCY			
CB	CATCH BASIN	PVI	POINT OF VERTICAL INTERSECTION			
CL	CENTERLINE	R	RADIUS			
D	DEGREE OF CURVE	ROW	RIGHT-OF-WAY			
EP	EDGE OF PAVEMENT	SAN	SANITARY SEWER			
FF	FINISHED FLOOR	ST	STORM SEWER			
FG	FINISHED GRADE	Т	TANGENCY OF CURVE			
FL	FLOW LINE	TB	TOP OF BANK			
FP	FLOODPLAIN	TC	TOP OF CURB			
FR	FRAME	TF	TOP OF FOUNDATION			
FW	FLOODWAY	TP	TOP OF PIPE			
HWL	HIGH WATER LEVEL	TS	TOP OF SIDEWALK			
INV	INVERT	TW	TOP OF WALK			
L	LENGTH OF CURVE	WM	WATER MAIN			
MH	MANHOLE	Δ	INTERSECTION ANGLE			

Know what's below.

Call before you dig.

Formerly JULIE 1-800-892-0123

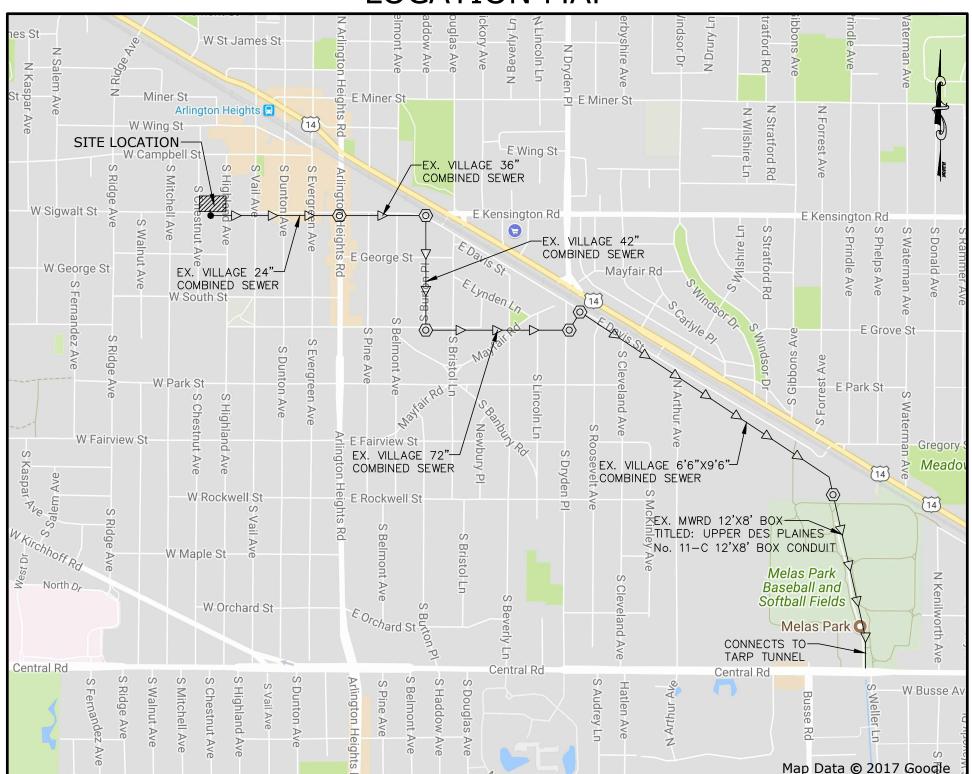
FINAL ENGINEERING PLANS

SIGWALT STREET APARTMENTS

45 S. CHESTNUT AVE

ARLINGTON HEIGHTS, ILLINOIS

LOCATION MAP



VILLAGE OF ARLINGTON HEIGHTS Community Development: (847) 368-5200 City, State ZIP Public Works Department: (847) 368-5800 222 N Ridge Ave. Arlington Heights, IL 60005 Underground Utility Locations

1-800-892-0123

GENERAL NOTES

- 1. The contractor shall notify the following governmental agencies at least two working days prior to commencement of construction: • Village of Arlington Heights Public Works Department (847-368-5800)
- 2. The contractor shall notify all utility companies and arrange for their facilities to be located prior to work in any easement, right-of-way, or suspected utility location. Repair of any damage to existing facilities shall be the responsibility of the contractor. Utility locations shown herein are for graphic illustration only and are not to be relied upon.
- 3. Prior to commencement of any offsite construction, the contractor shall secure written authorization that all offsite easements have been secured, and that permission has been granted to enter onto private property.
- 4. Elevations shown herein reflect NAVD 1988 datum.
- 5. The boundary and topographic survey data for this project is based on a field survey prepared by Professional Associated Survey, Inc., dated February 13, 2017. The contractor shall verify existing conditions prior to commencing construction and shall immediately notify the engineer in writing of any differing conditions.
- 6. RWG Engineering, LLC, it's employees and agents are not responsible for the safety of any party at or on the construction site. Safety is the sole responsibility of the contractor, and any other entity performing work at the site. Neither the owner nor the engineer assumes any responsibility for job site safety or for the means, methods or sequences of construction.

- 7. Except where modified by the contract documents, all work proposed hereon shall be in accordance with the following specifications, which are hereby
 - A. "Standard Specifications for Road and Bridge Construction in Illinois," as prepared by I.D.O.T. latest edition.
 - B, "Standard Specifications for Water and Sewer Main Construction in Illinois," latest edition.
 - C. "Illinois Recommended Standards for Sewage Works," as published by the I.E.P.A., latest edition.
 - D. The subdivision and development codes and standards of the Village of Arlington Heights, as published by the Municipality.
 - E. "Illinois Accessibility Code" as published by the State of Illinois Capital Development Board, effective April 24, 1997.
 - F. The National Electric Code.
 - G. "Illinois Urban Manual" as prepared by the U.S. Dept. of Agriculture latest edition.
- 8. The Village of Arlington Heights Development Ordinance shall take precedence if a conflict in project specifications occurs.

PLANS PREPARED FOR

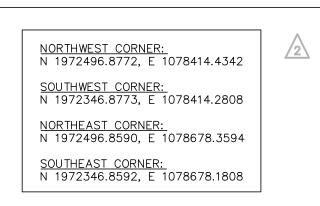
CA VENTURES

130 E. RANDOLPH STREET SUITE 2100 CHICAGO, ILLINOIS 60601 (312) 800-5370

INDEX OF SHEETS

- 1. TITLE SHEET
- 2. EXISTING CONDITIONS AND DEMOLITION PLAN
- 3. SITE GEOMETRIC AND PAVING PLAN
- 4. SOIL EROSION AND SEDIMENT CONTROL (SESC) PLAN
- 5. GRADING PLAN
- 6. UTILITY PLAN
- 7. PROJECT NOTES AND SPECIFICATIONS
- 8. CONSTRUCTION DETAILS AND STANDARDS
- 9. CONSTRUCTION DETAILS AND STANDARDS

COORDINATES AT LOT CORNERS SHOWN HEREON ARE REFERENCED TO ILLINOIS STATE PLANE SYSTEM COORDINATES, EAST ZONE. ESTABLISHED THROUGH VRS TRIMBLE NETWORK.



"TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THE DRAINAGE OF SURFACE WATERS WILL NOT BE CHANGED BY THE CONSTRUCTION OF THIS PROJECT, OR, THAT IF DRAINAGE WILL BE CHANGED, REASONABLE PROVISION HAS BEEN MADE FOR COLLECTION AND DIVERSION OF SUCH SURFACE WATERS INTO PUBLIC AREAS, OR DRAINS APPROVED FOR USE BY THE VILLAGE, AND THAT SUCH SURFACE WATERS ARE PLANNED FOR IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRACTICES SO AS TO REDUCE THE LIKELIHOOD OF DAMAGE TO ADJOINING PROPERTIES BECAUSE OF THE CONSTRUCTION OF THIS



REGISTERED PROFESSIONAL ENGINEER

BENCHMARKS

SOURCE BENCHMARK:

ALTA/NSPS LAND TITLE SURVEY PROVIDED BY PROFESSIONALS ASSOCIATED SURVEY, INC. 7100 N. TRIP AVENUE, LINCOLNWOOD, IL. 60712

SITE BENCHMARK:

FIRE HYDRANT ON N.W. CORNER OF SIGWALT STREET AND S. HIGHLAND AVENUE. N.W. BOLT ON FIRE HYDRANT ELEV.= 692.99

EXPIRATION DATE: 11/30/17

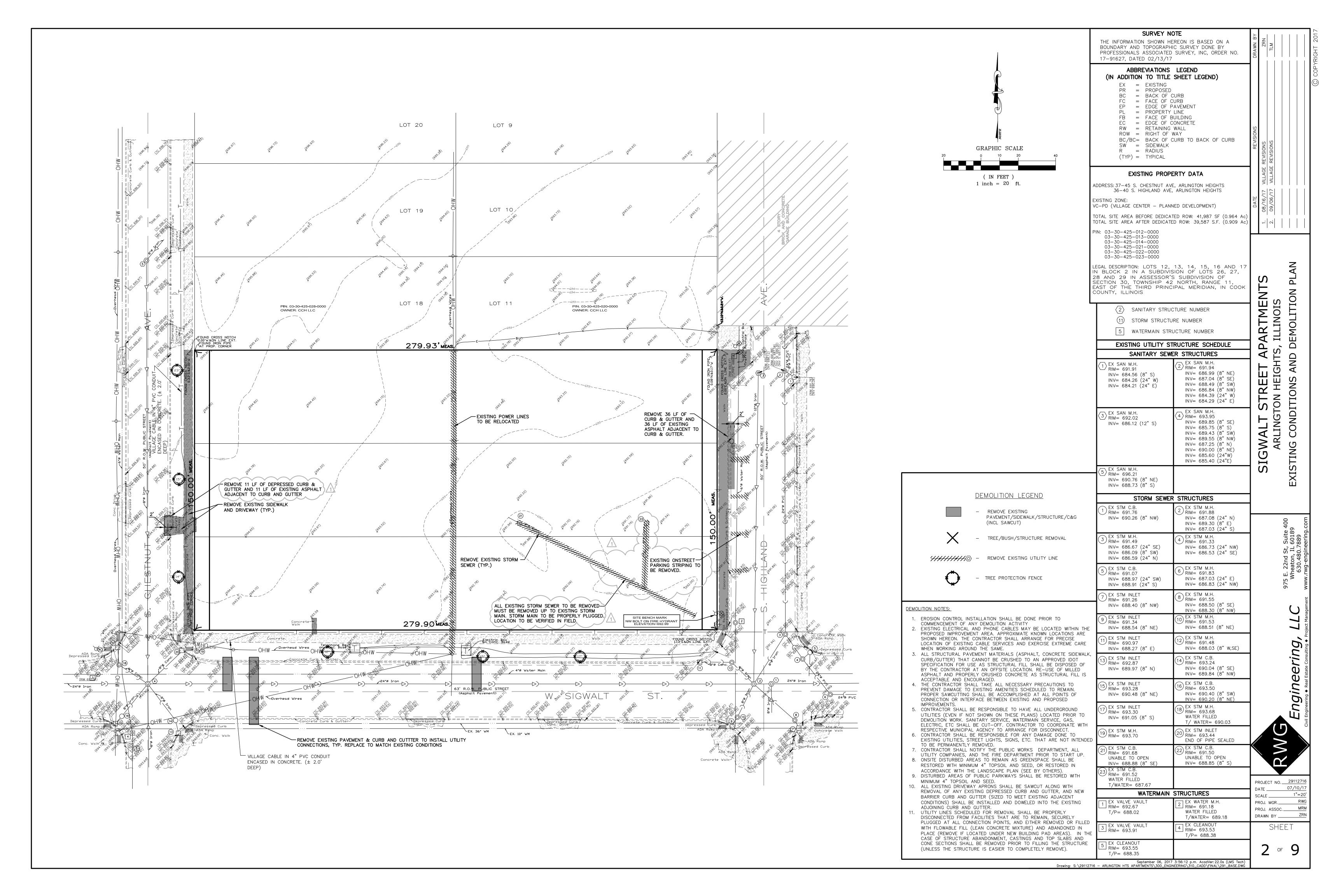
SHEET

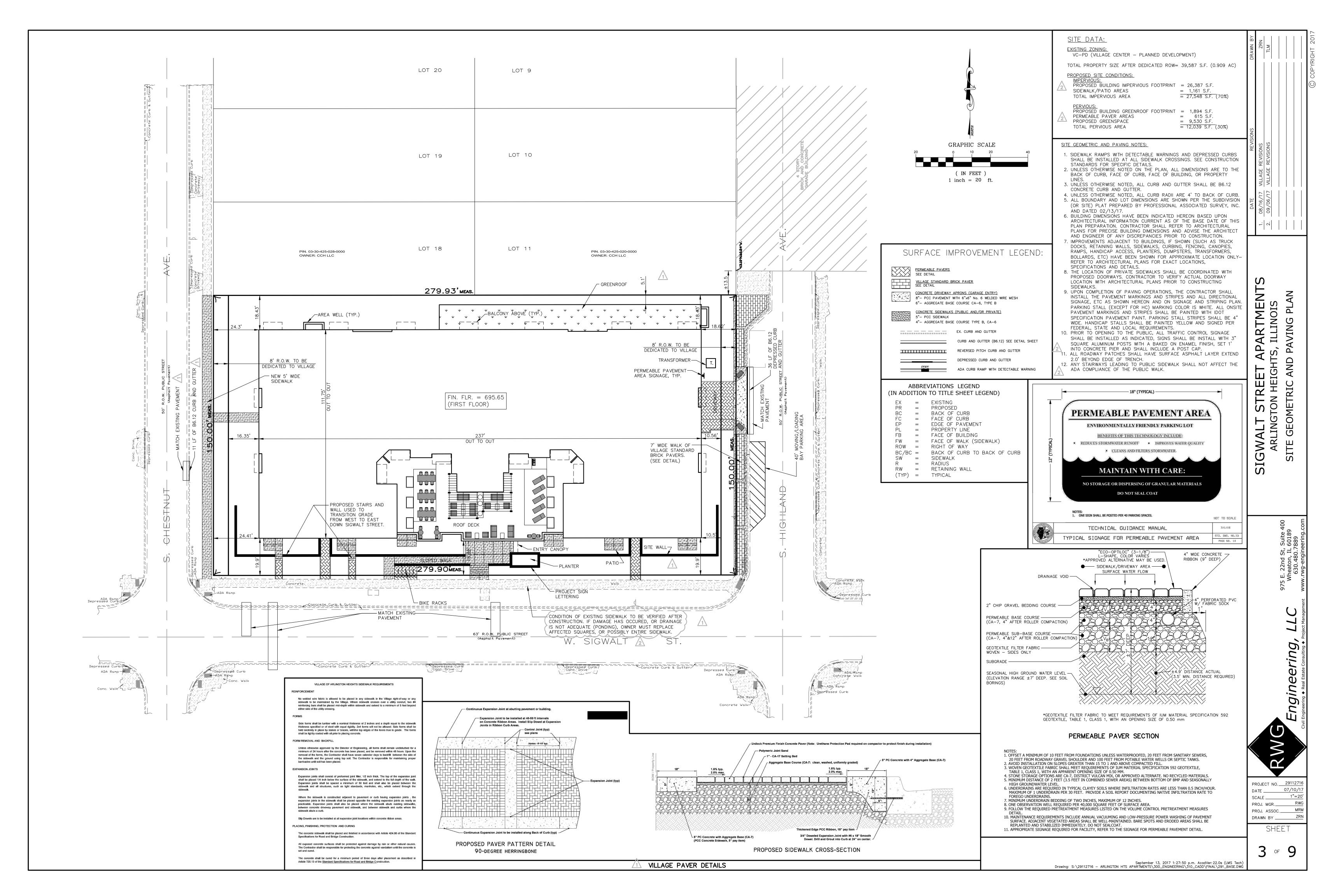
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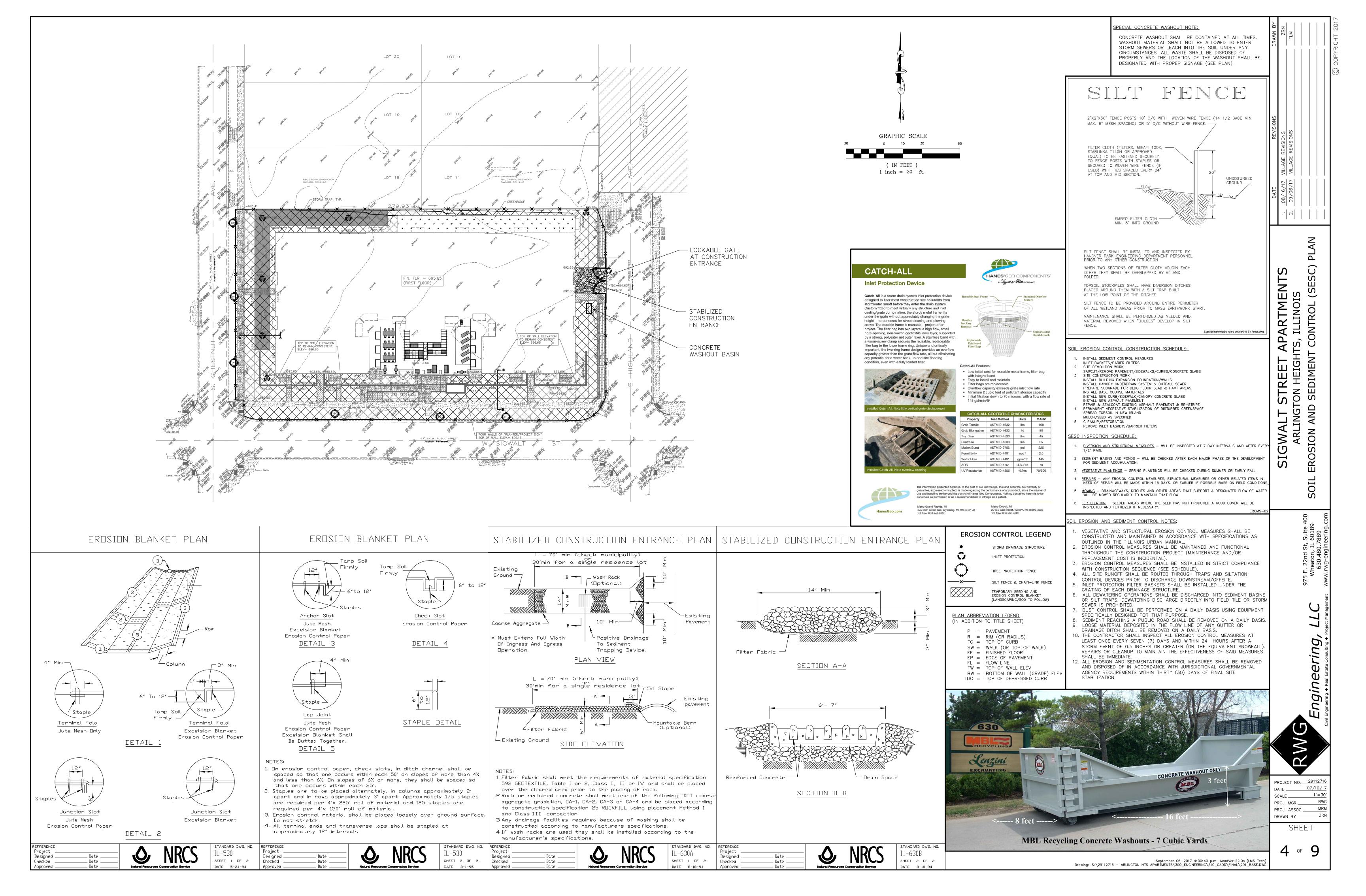
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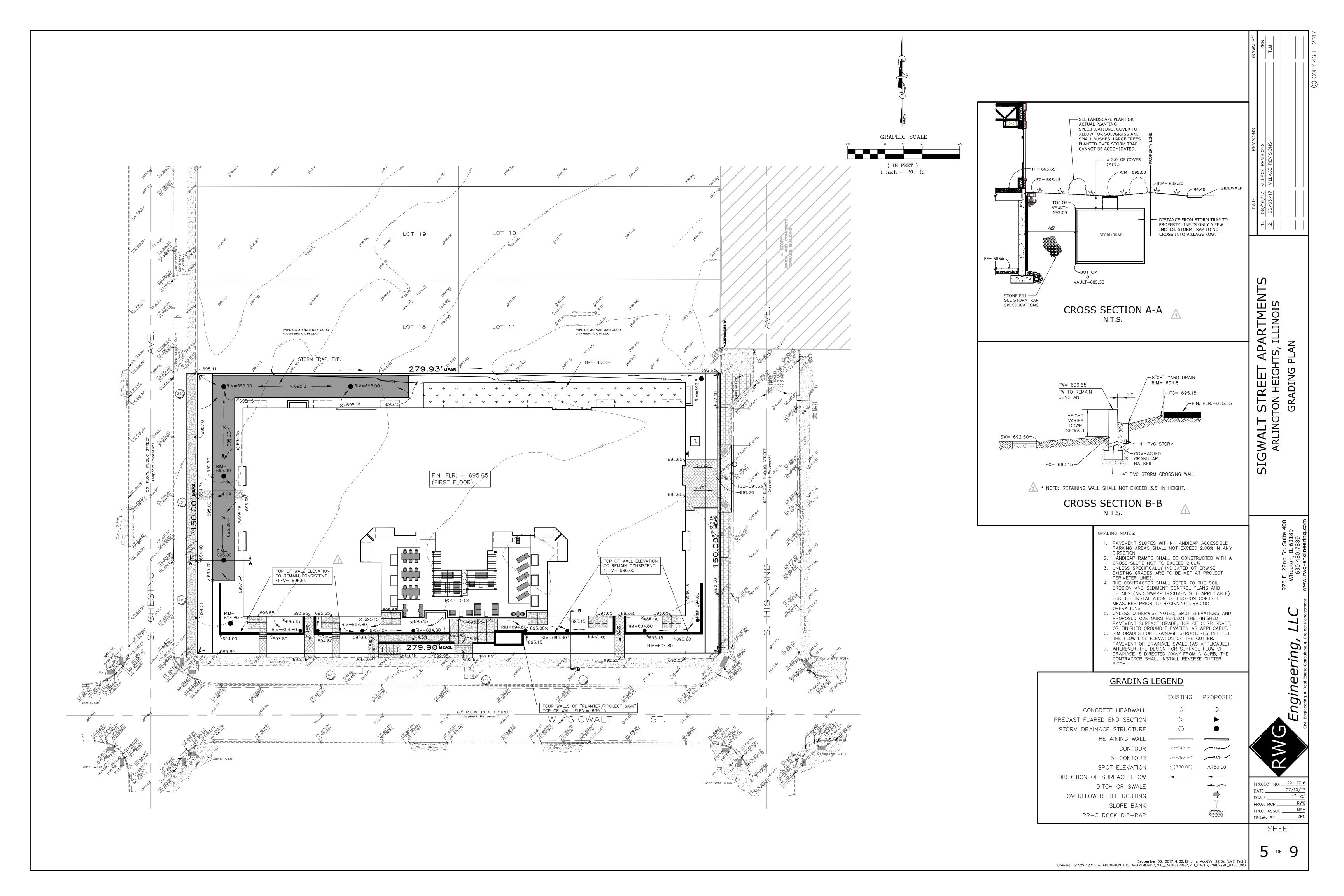
PROJECT NO. <u>2911271</u>

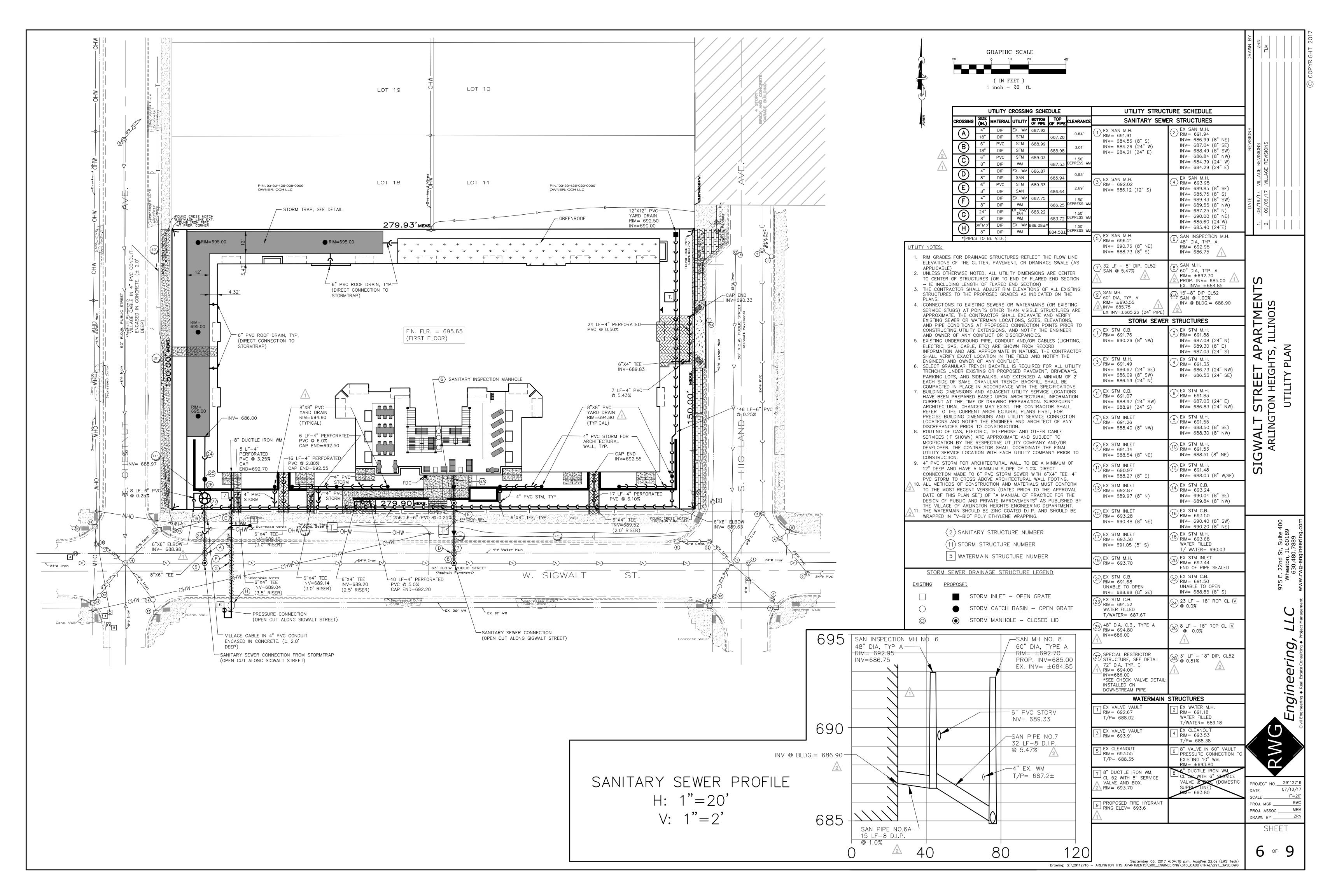
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USE OF IMPROVEMENT PLANS

No Improvement Plans shall be used for construction unless specifically marked "For Construction." Prior to commencement of construction, the contractor shall verify all dimensions and conditions affecting their work with the actual conditions at the job site. If there are discrepancies from what is shown on the construction plans, the contractor shall immediately report same to the engineer before doing any work, otherwise the contractor assumes full responsibility. In the event of disagreement between the construction plans, standard specifications, and/or special details, the contractor shall secure written instructions from the engineer prior to proceeding with any part of the work impacted by omissions or discrepancies. Failing to secure such instruction, the contractor will be considered to have proceeded at his own risk and expense. In the event of any doubt or question with respect to the true meaning of the construction plans or specifications, the decision of the engineer shall be final and conclusive.

HIGHWAY/ROADWAY CONSTRUCTION PERMITS

The contractor shall be responsible for obtaining all required permits for construction along or across existing streets or highways, including the use and access to existing streets. The contractor shall make arrangements for proper bracing, shoring, and other required protection of all roadways before construction begins. The contractor shall be responsible for any damage to streets or roadways and associated structures, and shall make repairs as necessary to the satisfaction of the engineer and

EXISTING UTILITIES

Easements for existing utilities within public right-of-way are shown on the plans according to available records. The contractor shall be responsible for determining the exact location in the field of such utility lines and their protection from damage during construction. If existing utility lines of any nature are encountered which conflict in location or elevation with new construction, the contractor shall notify the engineer immediately so that the conflict may be resolved. PROJECT IMPROVEMENTS AND QUANTITIES

contractor shall review the construction documents and determine all required improvements and verify all quantities as may be provided by the engineer or owner for bidding purposes, and report any discrepancies to the engineer. The contract price submitted by the contractor shall be considered as lump sum for the completed project unless there is a plan revision or written change to the scope of

Whenever the performance of work is indicated on the plans and no item is included in the contract for payment, the work shall be considered incidental to the contract and no additional compensation will be

MAINTENANCE OF SITE DRAINAGE During construction operations any loose material that is deposited in the flow line of gutters, drainage structures, ditches, etc. and obstructs the natural drainage flow line shall be removed at the close of each working day by the responsible party. The contractor shall insure positive site drainage at the close of each work day. Drainage may be achieved by ditching, pumping, or any other acceptable method. Failure to provide positive drainage will preclude any possible added compensation requested due to delays or unsuitable materials created as a result thereafter. At the conclusion of construction operations all drainage structures and flow lines shall be free from dirt and debris. This work shall be considered incidental to the contract.

TRAFFIC CONTROL

The contractor is responsible for the installation and maintenance of adequate signage, traffic control, and warning devices to inform and protect the public during all phases of construction. All barricades and warning signs shall be provided in accordance with the IDDT Standard Specifications. Adequate lighting shall tained from dusk to dawn at all locations where construction operations warrant, or as designated by the engineer or applicable governmental agency. Traffic control items shall be in accordance with the IDOT "Manual on Uniform Traffic Control Devices.

PAVEMENT REMOVAL/REPLACEMENT disting permanent type pavements or other permanent improvements which abut or otherwise interfere with proposed improvements and must be removed shall be saw cut full depth prior to removal Items so removed shall be replaced with similar construction materials to original condition or better. Payment for saw cutting shall be included in the removal cost and replacement will be paid under the respective item in the contract, unless otherwise indicated. Removed pavement, sidewalk, curb, etc. shall be disposed of by the contractor at his own expense at an offsite dump site.

TREE PROTECTION

Existing trees not scheduled for removal shall be protected from damage. Trimming and sealing shall be in accordance with IDOT Standard Specifications. EXISTING SIGNAGE & MAIL BOXES

Existing signage and mall boxes that interfere with construction shall be removed, stored, and replaced/reset by the contractor in accordance with the IDOT Standard Specifications. Damage to these items shall be repaired/replaced by the contractor at his expense. Temporary mailbox facilities shall be

tile encountered during construction shall be connected to proposed storm sewer or extended to outlet into a proposed drainage way. If this is not possible, then existing tile shall be repaired with new pipe of same size and material (or better) and restored in acceptable operating condition at the original grade. Records of location and elevation shall be made by the contractor and furnished to the engineer

CONSTRUCTION DEBRIS CLEAN-UP
The contractor is responsible for removal and disposal of all excess material and debris resulting from his construction operations at no expense to the owner.

CONSTRUCTION RECORD

The contractor shall keep a set of approved construction plans on the jobsite, and shall maintain a legible record on said plans of field tile encountered, modifications/attentions to alignment/installation of proposed improvements, etc. Upon completion of the contractor's work, said record documents shall be provided to the engineer. Final payments shall not come due until this information is provided to the

SAFETY & CONSTRUCTION EXECUTION
The contractor shall comply with the rules and regulations of OSHA and appropriate authorities regarding jobsite safety provisions. The engineer and owner are not responsible for the construction means, methods, techniques, sequences or procedures, time for performance, programs, or for any safety precautions used by the contractor. The contractor is solely responsible for execution of his work in

NSUNTAILE Iontractors responsible for construction shall purchase insurance for the benefit of the engineer naming RWG Engineering, LLC as an additional insured to cover claims and expenses, including cost of defense, asserted against engineer, it's agents, employees, and consultants for bodily injury, sickness, disease or death caused by any neoligent act or omission of the contractor, any subcontractor, anyone insurance shall state that: 'The coverage afforded the additional insured's shall be primary insurance for the additional insured with respect to claims arising out of operations performed by or on behalf of the contractor." A certificate shall be issued to the engineer prior to the start of work. Applicable insurance maintained by RWG Engineering, LLC shall be considered secondary and on an excess or

PROJECT SPECIFICATIONS I. <u>SOIL EROSIONS AND SEDIMENT CONTROL</u>

GENERAL STANDARDS
Unless specifically modified below, all soil erosion and sediment control work shall be done in accordance with NPDES General Permit No. ILR10 and the "Illinois Urban Manual." The contractor shall conform to all requirements of this general permit including maintenance and inspection of erosion control measures and filing applicable certifications and reports. A copy of the notification of coverage letter shall be posted at the site in a prominent place for public viewing. Any control measures in addition to those outlined in these plans which are deemed necessary by the owner, engineer, or applicable governmental agency shall be immediately implemented by the contractor. Maintenance and replacement of erosion control items shall

A copy of the Stormwater Pollution Prevention Plan (SWPPP) shall be kept onsite with all supplemental material as required per NPDES General Permit No. ILR10. Construction operations shall conform to permit

 \cdot to clearing and grading, perimeter silt fence shall be installed, and onsite sediment control measures shall be constructed and functional per the soil erosion and sediment control plan. The contractor shall construct ditches, swales, sediment traps, and sittation control measures to intercept surface waters prior to conveyance onto adjacent properties, routing surface flow to onsite treatment facilities.

Temporary gravel construction entrances shall be installed and maintained to prevent sediment from being trucked offsite. Sediment reaching a public road shall be removed by shoveling or street sweeping at the end of each work day. Loose material deposited in the flow line of any gutter or drainage structure shall be removed at the end of each work day

TOPSOIL STOCKPILES
Topsoil stockpiles shall be seeded within seven (7) calendar days of completion for erosion control, unless they will be distributed within fourteen (14) calendar days. Stockpiles shall be encompassed with a silt

DUST CONTROL

Dust control shall be performed on a daily basis using water dispersed from a truck mounted tank with a

buring de-watering operations water shall be pumped into sediment basins or silt traps. De-watering directly into field tile or stormwater structures is not permitted. Water pumped during construction operations shall be filtered.

<u>STABILIZATION</u>
Disturbed areas shall be stabilized by seeding within seven (7) days of completion of disturbance unless the area will be disturbed within fourteen (14) days. Temporary seed mixtures shall be applied at a rate

When stormwater is routed through proposed detention basins to allow for settlement of suspended silt and debris, the basins shall be constructed at the start of the project. Basins shall be sufficiently over-excavated to provide appropriate volume for sediment collection.

STRUCTURE FILTER FABRIC
Filter fabric or inlet protection devices shall be installed in each onsite drainage structure. Fabric shall be cut large enough such that the entire grate is covered with a 24' minimum 'basket' to collect

<u>DRAINAGE SYSTEM MAINTENANCE</u> All storm sewers, catch basins, sumps, and detention basins provided with this project shall be cleaned at onstruction completion and prior to final acceptance. Cleaning may also be required during construction if the traps are not functioning properly.

<u>INSPECTIONS</u>
The contractor shall inspect all erosion control measures at least once every seven (7) calendar days, and within 24 hours of a storm event of 0.5 inches or greater (or equivalent snowfall) and in accordance with NPDES guidelines. Necessary repairs or clean up to maintain the effectiveness of the control measures shall be done immediately

All erosion and sediment control measures shall be removed and disposed of in accordance with applicable governmental agency requirements within 30 days of final site stabilization. II. <u>EXCAVATION AND GRADING - (EARTHWORK)</u>

GENERAL STANDARDS

Unless specifically modified below, all excavation and grading - (earthwork) shall be done in accordance with the applicable sections of the "Standard Specifications for Road and Bridge Construction in Illinois," as

<u>SITE PREPARATIONS</u>
Prior to onset of operations, the contractor shall become familiar with the soil erosion control

specifications. The establishment of erosion control procedures and the placement of filter fencing, etc. to protect adjacent property shall occur before mass grading begins, and in accordance with the Tree protection fencing shall be placed around any trees designated to be preserved within the

construction zone. Fencing shall be placed in a circle centered around the tree, such that the entire drip zone (extent of furthest extended branches) shall be within the fence limits. The existing grade within the fenced area shall remain undisturbed.

<u>DEMOLITION</u>
Demolition of existing structures, pavements, curbs, flatwork, utilities, etc. shall be disposed of at an offsite dump site provided by the contractor. Existing water wells shall be closed and capped in accordance with the Illinois Water Well Construction Code, as published by the Department of Public Health. Existing septic tanks and grease traps shall have all liquids and solids removed by a licensed waste hauler prior to structure removal or filling by the contractor

CLEARING AND GRUBBING ess noted for preservation, all vegetative growth including trees and tree stumps shall be removed

opsoil shall be stripped from all roadway, driveway, parking area, right-of-way, building pad and other designated structural areas. Stockpiling of topsoil for respread shall be at locations as directed by the owner. Topsoil stockpiled for future use shall be free from large roots, sticks, weeds, brush, stones larger than one inch diameter, and other litter or waste products not conducive to plant growth. Failure to properly sequence stockpiling operations shall not constitute a claim for additional compensation. No material shall be stockpiled in front yards, drainage swales, flood routing areas, utility locations, utility easements or right-of-way

UNSUITABLE MATERIAL table subgrade material shall be removed from roadway, driveway, parking lot, building pad, and any other designated areas. Obviously soft underlying soil shall be removed from all structural improvement areas, areas to receive clay fill, and wherever else designated on the site. If underlying structural subgrade soils rut deeper than one inch under construction equipment or if the moisture content exceeds that needed for proper compaction, the soil shall be scarified, dried, and recompacted to the required

EXCAVATION AND EMBANKMENT
Upon completion of topsoil removal, the contractor shall perform excavation and embankment (fill) operations in accordance with the improvement plans. Structural embankment material shall be placed in level uniform layers so that the compacted thickness is approximately six inches. Each layer shall be thoroughly mixed during spreading to insure uniformity Embankment material within roadway, driveway, parking areas, and other structural clay fill areas shall be compacted to a minimum of ninety percent (90%) of maximum density (modified proctor method), or to such other density as determined appropriate by the soils engineer. Embankment for building pads shall be compacted to a minimum of ninety-five percent (95%) of maximum density (modified proctor method), or t such other density as determined appropriate by the soils engineer. Embankment material within non-structural fill areas (random fill) shall be compacted to a minimum of

eighty-five percent (85%) of maximum density (modified proctor method), or to such other density as determined appropriate by the soils engineer Embankment material within non-structural fill areas (random fill) required to raise the ground surface to or above the base (100 year) flood elevation shall be compacted to a minimum of ninety percent (90%) or maximum density (modified proctor method). All subgrades for proposed street and pavement areas shall be proof-rolled by the contractor and any

unstable areas shall be removed and replaced as directed by the soils engineer. BACKFILLING CURBS, PAVEMENT, ETC. Curbs, payements, sidewalks, etc. shall be backfilled by the contractor after installation in accordance

Except where otherwise noted, the contractor shall respread a minimum six (6) inch layer of topsoil on all designated open space, parkway, landscape, and other non-structural areas

unsuitable earth material. Upon completion of topsoil respread, the contractor shall install seed and fertilizer as indicated on these

INSPECTION BY THE SOILS ENGINEER e owner provided soils engineer shall closely supervise and inspect the grading operations, particularly during the removal of unsuitable material and the construction of embankments or building pads. A testing, inspection and supervision of embankment quality, unsuitable removal and replacement, and other soils related operations shall be entirely the responsibility of the soils engineer.

Building pad elevations, subgrades for pavement, driveways and sidewalks, and all yard/open space areas shall be completed within a tolerance of plus or minus 0.1 foot of design subgrade elevations

UTILITY INSTALLATION PREPARATION utility construction, proposed pavement areas, building pads, driveway and sidewalk areas, and yard/open space areas shall be rough graded to plus or minus one foot of design subgrade elevations. Grade elevations shown on the improvement plans are finished grades, Pavement and/or topsoil respread thicknesses must be subtracted to determine subgrade elevations.

Grading and site improvement construction shall not cause ponding of stormwater. All areas adjacent to improvements shall be graded to provide positive site drainage

RIP RAP MATERIAL
Stone Rip-Rap material provided shall conform to IDOT specification criteria. SUBGRADE DESIGN CRITERIA Pavement subgrade shall have a minimum IBR of 3.0 as determined by the soils engineer. The proposed pavement design has been based on a minimum IBR of 3.0. If areas of pavement subgrade are encountered which do not meet the minimum IBR requirement, subgrade remedial work or pavement design revisions will be ordered by the owner to obtain equivalent pavement strength.

III. <u>UNDERGROUND UTILITIES - UNIVERSAL</u>

not into the sanitary sewer.

All sewer and water main improvements shall be constructed in accordance with the "Standard Specifications for Water and Sewer Main Construction in Illinois," Latest Edition, along with applicable sections of the "Standard Specifications for Road and Bridge Construction in Illinois" as published by IDD Latest Edition, and the construction details and specifications of the applicable governmental agency.

Underground utility construction shall include trenching or augering; installation of pipe, structures and castings; backfilling of trenches with compaction; and testing as required. Fittings and accessories necessary to complete the work may not be specified, but shall be considered incidental to the cost of

Rough grading to within one foot of finished subgrade shall be completed by the earthwork contractor prior to commencement of underground utility construction.

The contractor is responsible for dewatering any excavation for the installation of sewer or water systems. Dewatering will be considered incidental to the respective underground utility construction

<u>SHEETING AND BRACING</u> Any anticipated costs for sheeting and bracing shall be reflected in the contract amounts. Additional costs for sheeting and bracing will not be allowed. SELECT GRANULAR BACKFILL trenches beneath existing or proposed pavement, driveways and sidewalks, and existing or proposed utilities (i.e. crossings), and for a distance of three (3) feet either side of same (or more for deeper utilities as noted on the plans), and/or wherever else shown on the plans shall be backfilled with

select granular material and firmly compacted in accordance with the construction standard details. EXCESS TRENCH MATERIAL

The contractor shall spread excess excavated trench material adjacent to the trenches in an orderly fashion so as not to create a hazard or obstruction, and to maintain the site in a workable condition.

"Band-Seal" or similar flexible type couplings shall be used when connecting sewer pipes of dissimilar materials. When connection to an existing sewer main by means other than an existing wye, tee, or an existing structure, one of the following methods shall be used:

• Circular coring of sewer main with proper tools ("Shewer-Tap" machine or similar) and installation of • Remove entire section of pipe (breaking only the top of one bell) and replace with precast wye or tee • Using a pipe cutter, neatly and accurately cut out desired length of pipe for insertion of proper fitting, using a non-shear mission coupling to hold assembly firmly in place

<u>UTILITY STRUCTURE SELECT BACKFILL</u>.
Where select granular bedding and backfill is required around utility structures, the cost for same shall be merged into the structure cost. Frames and lids (or grates) for sanitary, water main and storm sewer structures shall be as indicated on the plans, and the cost of same shall be integrated into the respective structure cos

<u>ADJUSTING RINGS</u>
All structures shall incorporate a minimum of three (3) inches and a maximum of eight (8) inches of adjusting rings (two (2) rings maximum). <u>STRUCTURE ADJUSTMENT</u>
All top of frames for utility structures (including B-Boxes) shall be adjusted to meet final finished grade

upon completion of finished grading and final inspection (cost incidental). The contractor shall insure that roadway, curb, and pavement inlets or structures (frames and grates) are at finished grade.

HORIZONTAL AND VERTICAL SEPARATION OF WATER AND SEWER MAINS Horizontal and vertical separation between water and sewer mains shall be maintained in accordance with the Standard Specifications for Water and Sewer Main Construction in Illinois and said specifications standard drawings 18, 19, 20, 21, 22, 23, and 24.

drains and floor drain sump pumps shall discharge into the sanitary sewer. All downspouts, footing drains and subsurface stormwaters shall discharge into the storm sewer or onto the ground

RIP RAP MATERIAL
Rip Rap material provided in conjunction with underground utility improvements shall conform to IDOT

CONSTRUCTION RECORD

The contractor shall maintain a legible record on a set of construction plans information concerning all manholes, wyes and services, valve boxes, curb boxes, etc. such that they can be field located in a manner acceptable to the applicable governmental agency. IV <u>UNDERGROUND UTILITIES - SANITARY SEWER</u>

SANITARY SEWER FIFE
Sanitary sewers and services (or combined sewers in combined sewer areas) shall be constructed of one or more of the following materials as specified on the plans:

• PVC gravity sewer pipe conforming to ASTM D-3034 for pipe diameters of 4 inch to 15 inch, or conforming to ASTM F-679 for pipe diameters of 18 inch to 48 inch, with minimum SDR of 26, and with Elastomeric gasket joints conforming to ASTM D-3212. The gasket shall comply with ASTM F-477. Sanitary services shall conform to ASTM D-2680 and D-2751 with solvent cement welded joints • Cement-lined ductile iron pipe class 52, conforming to AWWA C-151 (ANSI 21.51) with push-on joints conforming to AWWA C-111 (ANSI A21.11)

unitary sewers shall be installed on compacted granular crushed stone bedding, 1/4 inch to 3/4 inch in size (IDDT gradation CA-11 or CA-13), with a minimum thickness of one fourth of the outside pipe diameter, but not less than 4 inches nor more than 8 inches. Bedding shall extend to one foot over the top of pipe for all sanitary sewer and services. Cost for bedding shall be merged into lineal footage cost fo

SANITARY PIPE MANHOLE CONNECTIONS
Sanitary sewer manhole connections shall be made with a flexible water-tight boot precast into the structure (see construction standard detail). Refer to ASTM C-923 <u>SERVICE CONNECTIONS TO MAINLINE SEWER</u>
Service connections to mainline sewer shall be done with pre-cast wyes or tees manufactured for that purpose, and shall be of the same material as the mainline sewer.

Services shall be laid to a minimum grade of 1.0 percent. The end of the service shall be sealed with a watertight plug.

SERVICE LOCATIONS
Sanitary services shall be installed in a separate trench from water services, with a minimum horizontal

V. UNDERGROUND UTILITIES - WATER MAIN

Water main shall be cement-lined ductile iron pipe class 52 conforming to AWWA C-151 (ANSI A21.51). Rubber gasket joints shall conform to AWWA C-11 (ANSI A21.11). Push-On pipe joints shall incorporate "Field Lock Gaskets" by U.S. Pipe or Series 1700 Mega-Lug. Ductile iron fittings shall conform to AWWA C-110 (ANSI A21.10). Cement lining shall conform to AWWA C-104 (ANSI A21.4). Protective wrapping is required. It shall conform to AWWA C105-99, minimum thickness 8 mill polyethylene tube such as Clow type F-191 or equal, and shall completely encase and seal the main, fittings, and accessories per manufacturer's directions.

Water main fittings (bends, elbow, tees, increasers, reducers, etc.) may or may not be specifically referenced on the plans and quantities — if not, they shall be considered incidental and included in the lineal footage coast for the water main.

Minimum depth of cover from finished grade to top of water main or water service pipe shall be six (6.0) THRUST BLOCKING

Thrust blocking shall be installed with water mains at all bends, tees, elbows, etc. (see construction standard detail). Retainer glands or mega-lug fittings may be substituted if permitted by the applicable governmental agency. Cost of either to be merged into lineal footage cost for the water main. main shall be installed on compacted granular crushed stone bedding, 1/4 inch to 3/4 inch in size (IDDT gradation CA-6), a minimum of 4 inches below the bottom of the pipe and extending upward to the springline (1/2 the pipe diameter). Cost for bedding shall be merged into lineal footage cost for the water

Unless specifically noted otherwise, gate valves in accordance with the applicable governmental standard shall be used wherever valves are called for. Valves shall be iron body, bronze mounted, parallel resilient at valves per AWA C-509. Valves shall be rated for 300 psi test pressure and 200 psi working pressure.

vaults shall be used at all valve locations. Vaults shall be precast reinforced concrete structures, diameter as noted on the plans. Vaults shall include appropriate frames and lids (see construction standard detail(s).

Where indicated on the plan, pressure tap operations shall be done while maintaining system pressure in the existing main. The existing main shall be cleaned prior to installation of the tapping sleeve. Tapping valve shall conform to AWWA C-500. Vault, supports, frame, and lid shall conform to the construction

nts shall be of the manufacture and equipped with auxiliary valves and valve boxes in accordance with the applicable governmental agency's standard. Hydrants shall be equipped with two 2 1/2 inch hose nozzle connections and one 4 1/2 inch pumper port. Hose threads shall be the standard of the applicable governmental agency. Hydrants shall open left (counter-clockwise). Hydrants shall generally be located

three (3) feet clear of the back of curb. services shall be installed in a separate trench from sanitary (or storm) services, with a minimum

Water mains shall be subject to a pressure test by the contractor. Hydrostatic pressure test and leakage shall be based on 150 psi for 2 hours. Chlorination for disinfection shall be in accordance with the Standard Specifications. Testing and chlorination of existing water mains (where connections are indicated on the plans) shall be considered incidental. In the event that pressure testing of existing mains fail, and such failures are attributable to pre-existing conditions not under the contractor's contractor is entitled to additional payment to correct the deficiencies in the existing system.

torm sewers and services shall be constructed of one or more of the following materials as specified on

• Reinforced concrete pipe of the class as indicated on the plans, conforming to ASTM C-76 with trowel applied bituminous mastic compound per ASTM C-76. Where noted on the plan the joints and pipe shall incorporate flexible gaskets conforming to ASTM C-443 or ASTM C-361 in lieu of mastic (typically at • Cement-lined ductile iron pipe class 52, conforming to AWWA C-151 (ANSI 21.51) with push-on Joints • PVC gravity sewer pipe conforming to ASTM D-3034 (for pipe diameters of 4 inch to 15 inch) or conforming to ASTM F-679 (for pipe diameters of 18 inch to 48 inch). All pipe shall be SDR 35 or stronger, with elastomeric gasket joints conforming to ASTM D-3212. conforming to AWWA C-111 (ANSI A21.11).

STORM SEWER BEDDING
Storm sewers shall be installed on compacted granular crushed stone bedding, 1/4 inch to 3/4 inch in size (IDDT gradation CA-6), with a minimum thickness of one fourth of the outside pipe diameter, but not less than 4 inches nor more than 8 inches. Bedding shall extend upward to the springline of the pipe for concrete and ductile iron pipe, and one foot over the top of the pipe for PVC pipe and CMP pipe. Cost for bedding shall be merged into lineal footage cost for the respective sewer pipe.

INLETS, CATCH BASINS, AND MANHOLES
All structures shall be pre-cast reinforced concrete (see construction standard details). Structure sections and adjusting rings shall be securely sealed to each other with flexible bituminous mastic. Gaps at pipe connections shall be filled and securely sealed with non-shrink hydraulic cement mortar. Frames and grates (or lids) shall be as noted on the plans and shall be securely grouted with non-shrink hydraulic cement mortar.

and sertions shall be pre-cost reinforced concrete flored end sections with an end block footing in accordance with the construction standard details (or CMP metal end section as appropriate). Flared end sections for sewers 12 inches or greater shall include a safety grating per the construction standard

SPECIAL STRUCTURES

If called for on the plans, special structures (headwalls, boxes, etc.) shall be in accordance with the

VIII. <u>MWRD GENERAL NOTES</u>

VI. <u>UNDERGROUND UTILITIES - STORM SEWER</u>

A. REFERENCED SPECIFICATIONS

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE FOLLOWING, EXCEPT AS HEREIN OR ON THE PLANS: FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION), BY THE ILLINDIS

DEPARTMENT OF TRANSPORTATION (IDOT SS) FOR ALL IMPROVEMENTS EXCEPT SANITARY SEWER AND WATER MAIN CONSTRUCTION;

* STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS, LATEST EDITION (SSWS) FOR SANITARY SEWER AND WATER MAIN CONSTRUCTION; * VILLAGE OF HANDVER PARK MUNICIPAL CODE;

* THE METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO (MWRD) WATERSHED MANAGEMENT ORDINANCE AND TECHNICAL GUIDANCE MANUAL; * IN CASE OF CONFLICT BETWEEN THE APPLICABLE ORDINANCES NOTED, THE MORE STRINGENT SHALL TAKE

B. NOTIFICATIONS 1. THE MWRD LOCAL SEWER SYSTEMS SECTION FIELD OFFICE MUST BE NOTIFIED AT LEAST TWO (2) WORKING DAYS PRIOR TO THE COMMENCEMENT OF ANY WORK (CALL 708-588-4055).

2. THE VILLAGE OF HANDVER PARK ENGINEERING DEPARTMENT AND PUBLIC MUST BE NOTIFIED AT LEAST 24 HOURS PRIDR TO THE START OF CONSTRUCTION AND PRIDR TO EACH PHASE OF WORK. CONTRACTOR SHALL DETERMINE ITEMS REQUIRING INSPECTION PRIOR TO START OF CONSTRUCTION OR EACH WORK PHASE. 3. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES PRIOR TO BEGINNING CONSTRUCTION FOR THE EXACT LOCATIONS OF UTILITIES AND FOR THEIR PROTECTION DURING CONSTRUCTION. IF EXISTING UTILITIES ARE ENCOUNTERED THAT CONFLICT IN LOCATION WITH NEW CONSTRUCTION, IMMEDIATELY NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED. CALL J.U.L.I.E. AT 1-800-892-0123.

C. GENERAL NOTES 1. ALL ELEVATIONS SHOWN ON PLANS REFERENCE THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). 2. MWRD, THE MUNICIPALITY AND THE OWNER OR OWNER'S REPRESENTATIVE SHALL HAVE THE AUTHORITY TO INSPECT, APPROVE, AND REJECT THE CONSTRUCTION IMPROVEMENTS.

3. THE CONTRACTOR(S) SHALL INDEMNIFY THE OWNER, ENGINEER, MUNICIPALITY, MWRD, AND THEIR AGENTS, ETC., FROM ALL LIABILITY INVOLVED WITH THE CONSTRUCTION, INSTALLATION, OR TESTING OF THIS WORK ON THE

4. THE PROPOSED IMPROVEMENTS MUST BE CONSTRUCTED IN ACCORDANCE WITH THE ENGINEERING PLANS AS APPROVED BY MWRD AND THE MUNICIPALITY UNLESS CHANGES ARE APPROVED BY MWRD, THE MUNICIPALITY, OR AUTHORIZED AGENT. THE CONSTRUCTION DETAILS, AS PRESENTED ON THE PLANS, MUST BE FOLLOWED. PROPER CONSTRUCTION TECHNIQUES MUST BE FOLLOWED ON THE IMPROVEMENTS INDICATED ON THE PLANS 5. THE LOCATION OF VARIOUS UNDERGROUND UTILITIES WHICH ARE SHOWN ON THE PLANS ARE FOR INFORMATION ONLY AND REPRESENT THE BEST KNOWLEDGE OF THE ENGINEER, VERIFY LOCATIONS AND ELEVATIONS PRIOR TI

6. ANY EXISTING PAVEMENT, SIDEWALK, DRIVEWAY, ETC., DAMAGED DURING CONSTRUCTION OPERATIONS AND NOT CALLED FOR TO BE REMOVED SHALL BE REPLACED AT THE EXPENSE OF THE CONTRACTOR. 7. MATERIAL AND COMPACTION TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE

8. THE UNDERGROUND CONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS TO NOTIFY ALL INSPECTION 9. ALL NEW AND EXISTING UTILITY STRUCTURES ON SITE AND IN AREAS DISTURBED DURING CONSTRUCTION SHALL BE

ADJUSTED TO FINISH GRADE PRIOR TO FINAL INSPECTION. 10. RECORD DRAWINGS SHALL BE KEPT BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER AS SOON AS UNDERGROUND IMPROVEMENTS ARE COMPLETED. FINAL PAYMENTS TO THE CONTRACTOR SHALL BE HELD UNTIL THEY ARE RECEIVED. ANY CHANGES IN LENGTH, LOCATION OR ALIGNMENT SHALL BE SHOWN IN RED. ALL WYES OR BENDS SHALL BE LOCATED FROM THE DOWNSTREAM MANHOLE. ALL VALVES, B-BOXES, TEES OR BENDS SHALL BE TIED TO

1. THE CONTRACTOR SHALL TAKE MEASURES TO PREVENT ANY POLLUTED WATER, SUCH AS GROUND AND SURFACE WATER, FROM ENTERING THE EXISTING SANITARY SEWERS. 2. A WATER-TIGHT PLUG SHALL BE INSTALLED IN THE DOWNSTREAM SEWER PIPE AT THE POINT OF SEWER CONNECTION PRIOR TO COMMENCING ANY SEWER CONSTRUCTION. THE PLUG SHALL REMAIN IN PLACE UNTIL REMOVAL IS AUTHORIZED BY THE MUNICIPALITY AND/OR MWRD AFTER THE SEWERS HAVE BEEN TESTED AND

3. DISCHARGING ANY UNPOLLUTED WATER INTO THE SANITARY SEWER SYSTEM FOR THE PURPOSE OF SEWER FLUSHING OF LINES FOR THE DEFLECTION TEST SHALL BE PROHIBITED WITHOUT PRIOR APPROVAL FROM THE 4. ALL SANITARY SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS (LATEST EDITION).

5. ALL FLOOR DRAINS SHALL DISCHARGE TO THE SANITARY SEWER SYSTEM. 6. ALL DOWNSPOUTS AND FOOTING DRAINS SHALL DISCHARGE TO THE STORM SEWER SYSTEM.

7. ALL SANITARY SEWER PIPE MATERIALS AND JOINTS (AND STORM SEWER PIPE MATERIALS AND JOINTS IN A

COMBINED SEWER AREA) SHALL CONFORM 1		A SEMEK PIPE MATERIALS AND DUINTS IT
PIF	PE SPECIFICATIONS	JOINT SPECIFICATIONS
VITRIFIED CLAY PIPE	ASTM C-700	ASTM C-425
REINFORCED CONCRETE SEWER PIPE	ASTM C-76	ASTM C-443
CAST IRON SOIL PIPE	ASTM A-74	ASTM C-564
DUCTILE IRON PIPE	ANSI A21.51	ANSI A21.11
POLYVINYL CHLORIDE (PVC) PIPE 6-INCH TO 15-INCH DIAMETER SDR 26 18-INCH TO 27-INCH DIAMETER F/DY=46		ASTM D-3212 ASTM D-3212
HIGH DENSITY POLYETHYLENE (HDPE)	ASTM D-3350 ASTM D-3035	ASTM D-3261,F-2620 (HEAT FUSION) ASTM D-3212,F-477 (GASKETED)
WATER MAIN QUALITY PVC 4-INCH TO 36-INCH	ASTM D-2241	·
4-INCH TO 12-INCH 14-INCH TO 48-INCH	AWWA C900 AWWA C905	ASTM D-2672 DR ASTM D-3139 ASTM D-3212 ASTM D-3212

THE FOLLOWING MATERIALS ARE ALLOWED ON A QUALIFIED BASIS SUBJECT TO DISTRICT REVIEW AND APPROVAL PRIOR TO PERMIT ISSUANCE. A SPECIAL CONDITION WILL BE ADDED TO THE PERMIT WHEN THE PIPE MATERIAL BELOW IS USED FOR SEWER CONSTRUCTION OR A CONNECTION IS MADE.

PIPE SPECIFICATIONS JOINT SPECIFICATIONS

POLYPROPYLENE (PP) PIPE

12-INCH TO 24-INCH DOUBLE WALL ASTM F-2736 D-3212, F-477 30-INCH TO 60-INCH TRIPLE WALL ASTM F-2764 D3212, F-477

8. ALL SANITARY SEWER CONSTRUCTION (AND STORM SEWER CONSTRUCTION IN COMBINED SEWER AREAS), REQUIRES STONE BEDDING WITH STONE % "TO 1" IN SIZE, WITH MINIMUM BEDDING THICKNESS EQUAL TO % THE DUTSIDE DIAMETER OF THE SEWER PIPE, BUT NOT LESS THAN FOUR (4) INCHES NOR MORE THAN EIGHT (8) INCHES. MATERIAL SHALL BE CA-7, CA-11 OR CA-13 AND SHALL BE EXTENDED AT LEAST 12" ABOVE THE TOP OF THE PIPE

9. "BAND SEAL" OR SIMILAR NON-SHEAR FLEXIBLE-TYPE COUPLINGS SHALL BE USED IN THE CONNECTION OF SEWER

10. ALL MANHOLES SHALL BE PROVIDED WITH BOLTED, WATERTIGHT COVERS, SANITARY LIDS SHALL BE CONSTRUCTED WITH A CONCEALED PICKHOLE AND WATERTIGHT GASKET WITH THE WORD "SANITARY" CAST INTO THE LI 11. WHEN CONNECTING TO AN EXISTING SEWER MAIN BY MEANS OTHER THAN AN EXISTING WYE, TEE, OR AN EXISTING

MANHOLE, DNE OF THE FOLLOWING METHODS SHALL BE USED:

a) A CIRCULAR SAW-CUT OF SEWER MAIN BY PROPER TOOLS ("SHEWER-TAP" MACHINE OR SIMILAR) AND PROPER INSTALLATION OF HUBWYE SADDLE OR HUB-TEE SADDLE.

b) REMOVE AN ENTIRE SECTION OF PIPE (BREAKING ONLY THE TOP OF ONE BELL) AND REPLACE WITH A WYE OR TEE BRANCH SECTION.

c) WITH PIPE CUTTER, NEATLY AND ACCURATELY CUT OUT DESIRED LENGTH OF PIPE FOR INSERTION OF

12. WHENEVER A SANITARY/COMBINED SEWER CROSSES UNDER A WATERMAIN, THE MINIMUM VERTICAL DISTANCE FROM THE TOP OF THE SEWER TO THE BOTTOM OF THE WATERMAIN SHALL BE 18 INCHES, FURTHERMORE, A MINIMUM HORIZONTAL DISTANCE OF 10 FEET BETWEEN SANITARY/COMBINED SEWERS AND WATERMAINS SHALL BE MAINTAINED UNLESS; THE SEWER IS LAID IN SEPARATE TRENCH, KEEPING A MINIMUM 18" VERTICAL SEPARATION; IR THE SEWER IS LAID IN THE SAME TRENCH WITH THE WATERMAIN L□CATED AT THE □PP□SITE SIDE □N A BENCH OF UNDISTURBED EARTH, KEEPING A MINIMUM 18" VERTICAL SEPARATION. IF EITHER THE VERTICAL OR HORIZONTAL DISTANCES DESCRIBED ABOVE CANNOT BE MAINTAINED, OR THE SEWER CROSSES ABOVE THE WATERMAIN, THE SEWER SHALL BE CONSTRUCTED TO WATERMAIN STANDARDS.

13. ALL EXISTING SEPTIC SYSTEMS SHALL BE ABANDONED. ABANDONED TANKS SHALL BE FILLED WITH GRANULAR

14. ALL SANITARY MANHULES. (AND STURM MANHULES IN COMBINED SEWER AREAS), SHALL HAVE A MINIMUM INSIDE DIAMETER OF 48 INCHES, AND SHALL BE CAST IN PLACE OR PRE-CAST REINFORCED CONCRETE. 15. ALL SANITARY MANHOLES, (AND STORM MANHOLES IN COMBINED SEWER AREAS), SHALL HAVE PRECAST RUBBER

BODTS THAT CONFORM TO ASTM C-923 FOR ALL PIPE CONNECTIONS, PRECAST SECTIONS SHALL CONSIST OF MODIFIED GROOVE TONGUE AND RUBBER GASKET TYPE JOINTS.

16. ALL ABANDONED SANITARY SEWERS SHALL BE PLUGGED AT BOTH ENDS WITH AT LEAST 2 FEET LONG NON-SHRINK 17. EXCEPT FOR FOUNDATION/FOOTING DRAINS PROVIDED TO PROTECT BUILDINGS. OR PERFORATED PIPES ASSOCIATED WITH VOLUME CONTROL FACILITIES, DRAIN TILES/FIELD TILES/UNDERDRAINS/PERFORATED PIPES ARE NOT ALLOWED TO BE CONNECTED TO OR TRIBUTARY TO COMBINED SEWERS, SANITARY SEWERS, OR STORM SEWERS ACLUMED TO BE CONNECTED TO BE REPORTED TO COMBINED SEWERS, SANTIART SEWERS, OR STORM SEWERS TRIBUTARY TO COMBINED SEWERS IN COMBINED SEWER AREAS. CONSTRUCTION OF NEW FACILITIES OF THIS TY IS PROHIBITED; AND ALL EXISTING DRAIN TILES AND PERFORATED PIPES ENCOUNTERED WITHIN THE PROJECT AREA SHALL BE PLUGGED OR REMOVED, AND SHALL NOT BE CONNECTED TO COMBINED SEWERS, SANITARY SEWERS, OR STORM SEWERS TRIBUTARY TO COMBINED SEWERS.

18. A BACKFLOW PREVENTER IS REQUIRED FOR ALL DETENTION BASINS TRIBUTARY TO COMBINED SEWERS. REQUIRED BACKFLOW PREVENTERS SHALL BE INSPECTED AND EXERCISED ANNUALLY BY THE PROPERTY OWNER TO ENSURE PROPER OPERATION, AND ANY NECESSARY MAINTENANCES SHALL BE PERFORMED TO ENSURE FUNCTIONALITY. IN THE EVENT OF A SEWER SURCHARGE INTO AN OPEN DETENTION BASIN TRIBUTARY TO COMBINED SEWERS, THE PERMITTEE SHALL ENSURE THAT CLEAN UP AND WASH OUT OF SEWAGE TAKES PLACE WITHIN 48 HOURS OF

E. EROSION AND SEDIMENT CONTROL

1. THE CONTRACTOR SHALL INSTALL THE EROSION AND SEDIMENT CONTROL DEVICES AS SHOWN ON THE APPROVED 2. EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE FUNCTIONAL PRIOR TO HYDROLOGIC DISTURBANCE OF THE

3. ALL DESIGN CRITERIA, SPECIFICATIONS, AND INSTALLATION OF EROSION AND SEDIMENT CONTROL PRACTICES

SHALL BE IN ACCORDANCE WITH THE ILLINOIS URBAN MANUAL. 4. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL

5. INSPECTIONS AND DOCUMENTATION SHALL BE PERFORMED, AT A MINIMUM: a) UPDN COMPLETION OF INITIAL EROSION AND SEDIMENT CONTROL MEASURES, PRIOR TO ANY SOIL DISTURBANCE.
b) DNCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT WITH
GREATER THAN 0.5 INCH OF RAINFALL OR LIQUID EQUIVALENT PRECIPITATION.

6. SDIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. IF STRIPPING, CLEARING GRADING, OR LANDSCAPING ARE TO BE DONE IN PHASES, THE CO-PERMITTEE SHALL PLAN FOR APPROPRIATE SOIL EROSION AND SEDIMENT CONTROL MEASURES. 7. A STABILIZED MAT DE CRUSHED STONE MEETING THE STANDARDS DE THE ILLINDIS URBAN MANUAL SHALL B INSTALLED AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE. SEDIMENT OF SOIL REACHING AN IMPROVED PUBLIC RIGHT-OF-WAY, STREET, ALLEY OR PARKING AREA SHALL BE REMOVED BY SCRAPING OR STREET CLEANING AS ACCUMULATIONS WARRANT AND TRANSPORTED TO A CONTROLLED SEDIMEN

8. CONCRETE WASHOUT FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE ILLINOIS URBAN MANUAL AND SHALL BE INSTALLED PRIOR TO ANY ON SITE CONSTRUCTION ACTIVITIES INVOLVING CONCRETE. 9. TEMPORARY DIVERSIONS SHALL BE CONSTRUCTED AS NECESSARY TO DIRECT ALL RUNDFF FROM HYDROLOGICALLY DISTURBED AREAS TO AN APPROPRIATE SEDIMENT TRAP OR BASIN. VOLUME CONTROL FACILITIES SHALL NOT I

USED AS TEMPORARY SEDIMENT BASINS. 10. DISTURBED AREAS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN SEVEN (7) DAYS. 11. ALL FLOOD PROTECTION AREAS AND VOLUME CONTROL FACILITIES SHALL, AT A MINIMUM, BE PROTECTED WITH A

DOUBLE-ROW OF SILT FENCE (OR EQUIVALENT) 12. VOLUME CONTROL FACILITIES SHALL NOT BE CONSTRUCTED UNTIL ALL OF THE CONTRIBUTING DRAINAGE AREA

13. SOIL STOCKPILES SHALL, AT A MINIMUM, BE PROTECTED WITH PERIMETER SEDIMENT CONTROLS. SOIL STOCKPILES SHALL NOT BE PLACED IN FLOOD PROTECTION AREAS OR THEIR BUFFERS. 14. EARTHEN EMBANKMENT SIDE SLOPES SHALL BE STABILIZED WITH APPROPRIATE EROSION CONTROL BLANKET. 15. STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED BY

16. THE CONTRACTOR SHALL EITHER REMOVE OR REPLACE ANY EXISTING DRAIN TILES AND INCORPORATE THEM INTO DRAINAGE PLAN FOR THE DEVELOPMENT. DRAIN TILES CANNOT BE TRIBUTARY TO A SANITARY OR COMBINED 17. IF DEWATERING SERVICES ARE USED, ADJUINING PROPERTIES AND DISCHARGE LOCATIONS SHALL BE PROTECTED

FROM EROSION AND SEDIMENTATION, DEWATERING SYSTEMS SHOULD BE INSPECTED DAILY DURING OPERATIONAL PERIODS. THE SITE INSPECTOR MUST BE PRESENT AT THE COMMENCEMENT OF DEWATERING ACTIVITIES. 18. THE CONTRCTOR SHALL BE RESPONSIBLE FOR TRENCH DEWATERING AND EXCAVATION FOR THE INSTALLATION OF SANITARY SEWERS, STORM SEWERS, WATERMAINS AS WELL AS THEIR SERVICES AND OTHER APPURTENANCES. ANY TRENCH DEWATERING, WHICH CONTAINS SEDIMENT SHALL PASS THROUGH A SEDIMENT SETTLING POND OR EQUALLY EFFECTIVE SEDIMENT CONTROL DEVICE. ALTERNATIVES MAY INCLUDE DEWATERING INTO A SUMP PIT, FILTER BAG OR EXISTING VEGETATED UPSLOPE AREA. SEDIMENT LADEN WATERS SHALL NOT BE DISCHARGE TO WATERWAYS FLOOD PROTECTION AREAS OR THE COMBINED SEWER SYSTEM.

19. ALL PERMANENT EROSION CONTROL PRACTICES SHALL BE INITIATED WITHIN SEVEN (7) DAYS FOLLOWING THE COMPLETION OFSOIL DISTURBING ACTIVITIES.

20. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED AND REPAIRED AS NEEDED ON A YEAR-ROUND BASIS DURING CONSTRUCTION AND ANY PERIODS OF CONSTRUCTION SHUTDOWN UNTIL PERMANENT

21. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN THIRTY (30) DAYS 22. THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE PLANS ARE THE MINIMUM REQUIREMENTS.
ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER, SITE INSPECTOR, OR MWRD.

VII. PAVEMENT, CURBS, AND SIDEWALKS

APPROPRIATE SEDIMENT CONTROL MEASURES

specifically modified below, all pavement, curb, and sidewalk construction shall be done in accordance with the applicable sections of the "Standard Specifications for Road and Bridge Construction in Illinois," as published by IDOT, latest edition.

The subgrade for roadways, pavement, and/or curbs and walks shall be finished by the excavation contractor to within 0.1 foot, plus or minus, of plan elevation. The paving contractor shall confirm the proper preparation of the rough subgrade, or notify the owner and engineer in writing of any discrepancies. Prior to placement of base material, the paving contractor shall fine grade the subgrade to insure proper thicknesses for all base and pavement courses.

Bituminous Pavement shall consist of the sub-base course, base course, hot-mix asphalt binder course, and hot-mix asphalt surface course, of the thickness and materials as specified on the plans. The maximum size aggregate for the hot-mix surface course mixture shall be 3/8 inches. A prime coat shall be applied o the sub-base course (or base course) as indicated on the plans. A tack coat shall be applied to the pinder course prior to surface course placement, WEATHER REQUIREMENTS FOR BITUMINOUS PAVING
Hot-mix binder shall be placed only when the ambient air temperature is at least 40 degrees Fahrenheit
and the forecast is for rising temperatures. Hot-mix surface shall be placed when the ambient air
temperature is at least 45 degrees Fahrenheit and the forecast is for rising temperatures.

BITUMINOUS PAVEMENT INSTALLATION fter installation of the base course, all traffic shall be kept off the base until the binder course is placed. After installation of the binder course and upon completion of inspection and approval by the applicable governmental agency and owner, the binder shall be cleaned, a tack coat shall be applied at a rate of 0.05 gal/square yard (cost incidental), and the surface course shall be placed. All damaged areas n the binder, base or curb shall be repaired prior to surface replacement

CHECKMATE ULTRAFLEX SLIP-IN INLINE CHECK VALVES Specification TT-CMUF-SL

PART 1: GENERAL

1.01 SUBMITTALS

A. Submit product literature that includes information on the performance and operation of the valve, materials of construction, dimensions and weights, elastomer

characteristics, headloss, flow data and pressure ratings. B. Upon request, provide shop drawings that clearly identify the valve materials of

1.02 QUALITY ASSURANCE

construction and dimensions.

A. Supplier shall have at least twelve (12) years experience in the design and manufacture of "CheckMate™" style elastomeric check valves.

B. Manufacturer shall have designed, fabricated and have at least five (5) current installation of a "CheckMate" style elastomeric check valves in the 72" (1800mm) size. Manufacturer must provide documentation, including project name, location, and

C. Manufacturer shall have conducted independent hydraulic testing to determine headloss, jet velocity and vertical opening height characteristics on a minimum of three (3) sizes of CheckMate Valves ranging from 6" (150mm) through 24" (600mm). The testing must have been conducted for free discharge (pressurized and open channel flow discharging to atmosphere) and submerged conditions.

PART 2: PRODUCTS

2.01 CHECKMATE ULTRAFLEX ELASTOMERIC CHECK VALVES

A. Check Valves are to be all rubber and the flow operated check type with slip-in cuff connection. The entire CheckMate Ultraflex Valve shall be ply reinforced throughout the body, saddle and bill, which is cured and vulcanized into a one-piece unibody construction. A separate valve body or pipe used as the housing is not acceptable. The valve shall be manufactured with no metal, mechanical hinges or fasteners, which would be used to secure any component of the valve to a valve housing. The port area of the saddle shall contour into a circumferential sealing area (the "bill") that is concentric with the pipe which shall allow passage of flow in one direction while preventing reverse flow. The entire valve shall fit within the pipe inside diameter. The saddle area of the valve must be flat, not conical, and integral with the rubber body above centerline in order to not produce any areas or voids that can collect or trap debris. The valve must be easily installed in pipes with poor end condition without the need to modify or utilize the headwall or structure to seal and anchor the valve. Once installed, the CheckMate Ultraflex Valve shall not protrude beyond the face of the structure or end of the pipe.

B. The CheckMate Ultraflex Valve shall incorporate multiple concave grooves molded integrally into the flat saddle wall thickness extending longitudinally a minimum of 80% of the length of the saddle to reduce opening resistance and reduce headloss. C. The CheckMate Ultraflex Valve shall incorporate a custom shaped notch in the end of

the bill to reduce cracking pressure. The notch shall be at the invert/bottom of the bill

and symmetrical about the valve centerline. The longitudinal length of the notch shall be no greater than half the length of the bill. D. The outside diameter of the upstream and downstream sections of the valve must be circumferentially in contact with the inside diameter of the pipe. E. Slip-in style CheckMate Ultraflex Valves will be furnished with a set of stainless steel

allowing for the valve to be pinned and secured into position in accordance with the manufacturer's installation instructions F. Manufacturer must have flow test data from an accredited hydraulics laboratory to

shall expand outwards by means of a turnbuckle. Fach band shall be pre-drilled

confirm pressure drop and hydraulic data. E. Company name, plant location, valve size patent number, and serial number shall be bonded to the check valve.

2.02 FUNCTION A. When line pressure exceeds the backpressure, the line pressure forces the bill and saddle of the valve open, allowing flow to pass. When the backpressure exceeds the line pressure, or in the absence of any upstream or downstream pressure, the bill and

saddle of the valve is forced closed, preventing backflow.

2.03 MANUFACTURER

A. All valves shall be Series CMUF-SL slip-in CheckMate Ultraflex Valves as manufactured by Tideflex Technologies®, A Division of Red Valve Company, Carnegie, PA 15106. All valves shall be manufactured in the U.S.A.

3.01 INSTALLATION A. Valve shall be installed in accordance with manufacturer's written Installation and

Operation Manual and approved submittals.

3.02 MANUFACTURER'S CUSTOMER SERVICE A. Manufacturer's authorized representative shall be available for customer service during installation and start-up, and to train personnel in the operation, maintenance

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B. If specified, the manufacturer shall also make customer service available directly from the factory in addition to authorized representatives for assistance during installation and start-up, and to train personnel in the operation, maintenance and

Σ 8 \vdash 2 < expansion clamps. The clamps, which will secure the valve in place, shall be installed in Δ the upstream or downstream cuff of the valve, depending on installation orientation, and ' Â È

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PROJECT NO. 2911271 DATE _____ NON SCALE ____ PROJ. MGR.____

OF Q

PROJ. ASSOC. MRM DRAWN BY ____ SHEET

