



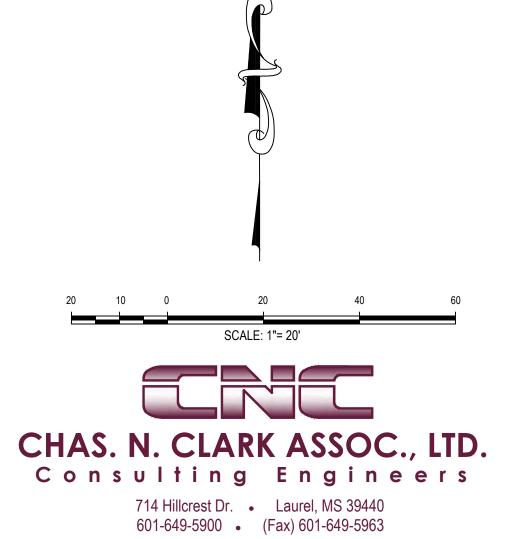




~			
PROJE	CT NO.:		<u>.</u>
DRAWI	N BY:	,	JBR
CHECK	(ED BY:	,	JWP
ISSUEI	DATE:	1.08.2	015
ISSU	JED REV	ISIONS	 3:
Δ			
<u> </u>			
\triangle			
4			
\triangle			
<u> </u>			
A			
<u> </u>			
)1	0		

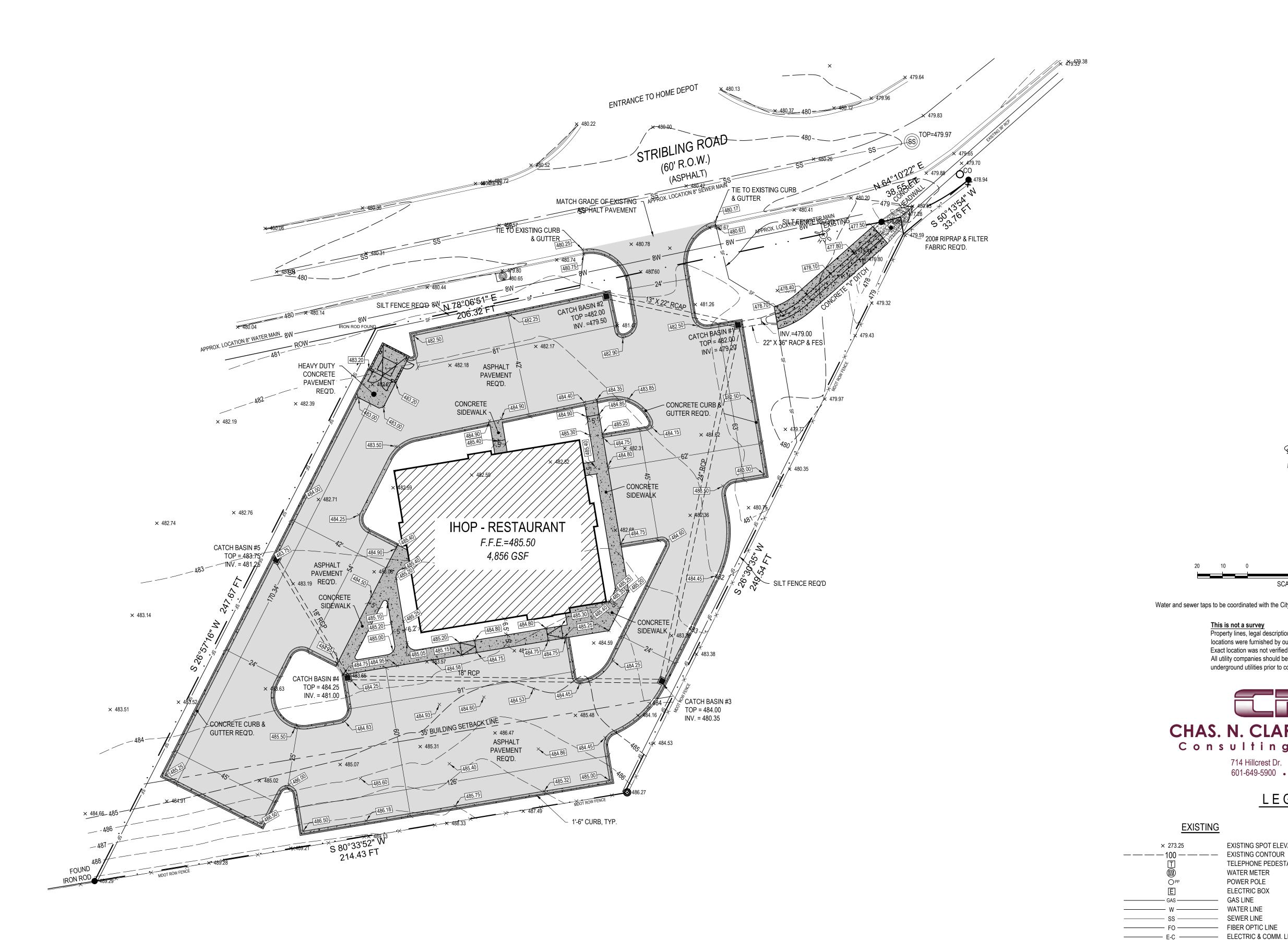
Site and Demolition Plan

NEW GRASS



LEGEND

EXISTING		PROPOSED	
× 273.25	EXISTING SPOT ELEVATION EXISTING CONTOUR TELEPHONE PEDESTAL WATER METER POWER POLE ELECTRIC BOX GAS LINE WATER LINE SEWER LINE FIBER OPTIC LINE ELECTRIC & COMM. LINE DRAINAGE FLOW LINE EASEMENT LINE PROPERTY LINE		FINISHED GRADE SPOT ELEVATION PROPOSED CONTOUR POWER POLE STREET LIGHT WATER VALVE SEWER MANHOLE SEWER CLEANOUT CATCH BASIN UNDERGROUND ELEC. WATERLINE SEWER LINE STORM WATER LINE GAS LINE
	EXISTING PAVEMENT TO BE REMOVED		NEW ASPHALT PAVING NEW CONCRETE PAVING
		late at the state of the state of	NEW ODAGO





t 330.659.3161





PROJECT NO.:	
DRAWN BY:	JBR
CHECKED BY:	JWP
ISSUED DATE:	2.27.2015
ISSUED REV	ISIONS:
<u> </u>	
<u> </u>	
<u> </u>	
<u></u> .	
<u></u> .	
<u> </u>	
<u> </u>	

ON

Grading & Drainage Plan

<u>HATCHING</u> EXISTING PAVEMENT

Water and sewer taps to be coordinated with the City of Brookhaven. Contractor to pay any required tapping fees.

This is not a survey
Property lines, legal description, topographic, and utility information and

Exact location was not verified by any means other than stated above. All utility companies should be notified to mark the exact location of

underground utilities prior to commencement of construction.

CHAS. N. CLARK ASSOC., LTD.
Consulting Engineers

714 Hillcrest Dr. • Laurel, MS 39440 601-649-5900 • (Fax) 601-649-5963

LEGEND

EXISTING SPOT ELEVATION

TELEPHONE PEDESTAL

WATER METER

POWER POLE

ELECTRIC BOX GAS LINE

WATER LINE

FIBER OPTIC LINE

- E-C ---- ELECTRIC & COMM. LINE

----- DRAINAGE FLOW LINE

SEWER LINE

locations were furnished by our Client.

TO BE REMOVED

— · — · — · PROPERTY LINE

EXISTING

× 273.25

NEW ASPHALT PAVING NEW CONCRETE PAVING **NEW GRASS**

PROPOSED

 $\odot\Box$

FINISHED GRADE SPOT ELEVATION

STREET LIGHT

WATER VALVE

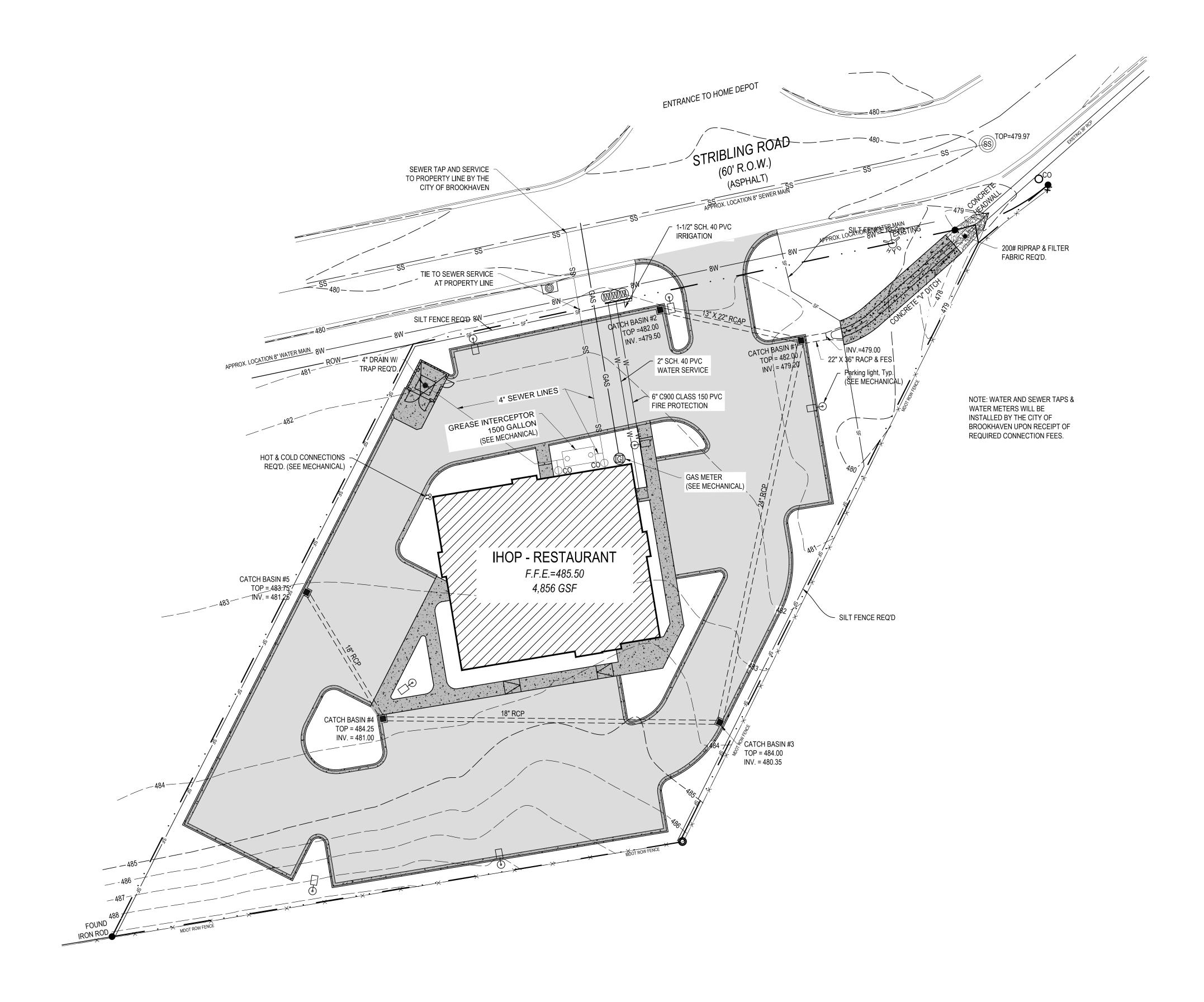
CATCH BASIN

SEWER LINE

STORM WATER LINE

SEWER CLEANOUT

UNDERGROUND ELEC.





t 330.659.3161





PROJECT NO.:	
DRAWN BY:	JBR
CHECKED BY:	JWP
ISSUED DATE:	2.27.2015
ISSUED REV	ISIONS:
Δ .	
<u> </u>	
<u> </u>	
<u> </u>	
<u>\$</u> .	
<u></u> .	
Δ	

CON

Utility Plan

<u>HATCHING</u>

Water and sewer taps to be coordinated with the City of Brookhaven. Contractor to pay any required tapping fees.

This is not a survey
Property lines, legal description, topographic, and utility information and

Exact location was not verified by any means other than stated above.

All utility companies should be notified to mark the exact location of underground utilities prior to commencement of construction.

CHAS. N. CLARK ASSOC., LTD.
Consulting Engineers

714 Hillcrest Dr. • Laurel, MS 39440 601-649-5900 • (Fax) 601-649-5963

LEGEND

EXISTING SPOT ELEVATION

TELEPHONE PEDESTAL

WATER METER

POWER POLE

ELECTRIC BOX GAS LINE

WATER LINE

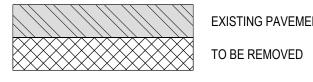
— E-C — ELECTRIC & COMM. LINE

----- DRAINAGE FLOW LINE

SEWER LINE FO FIBER OPTIC LINE

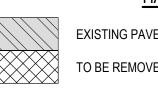
PROPERTY LINE

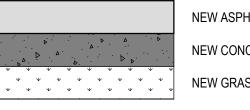
locations were furnished by our Client.



EXISTING

× 273.25





PROPOSED

 $\odot\Box$

FINISHED GRADE SPOT ELEVATION

STREET LIGHT

WATER VALVE

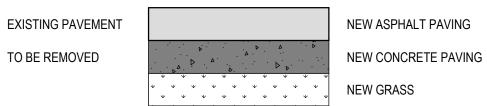
CATCH BASIN

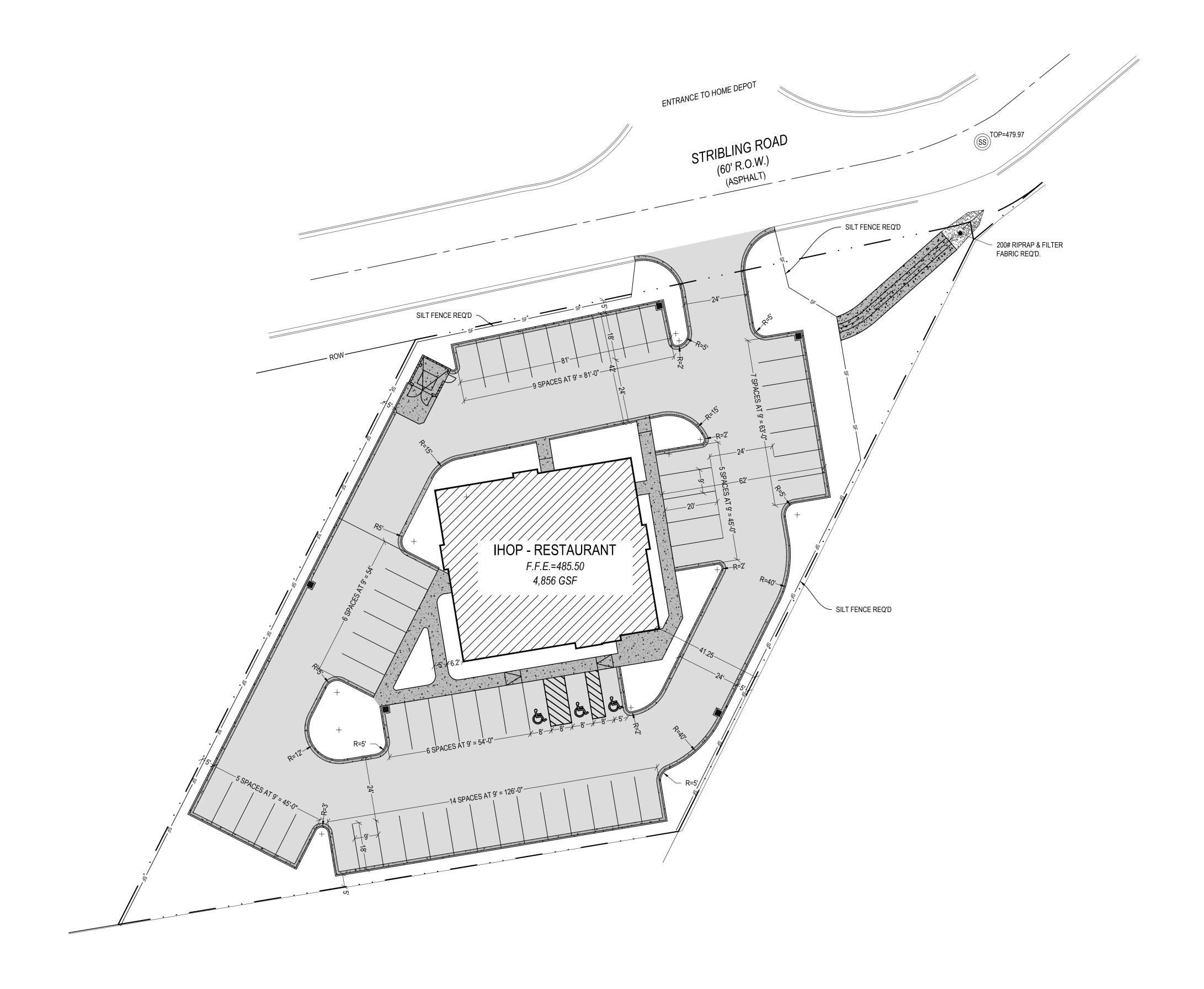
SEWER LINE

STORM WATER LINE

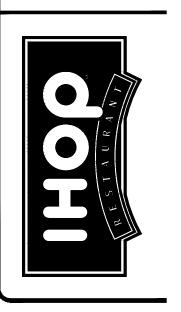
SEWER CLEANOUT

UNDERGROUND ELEC.





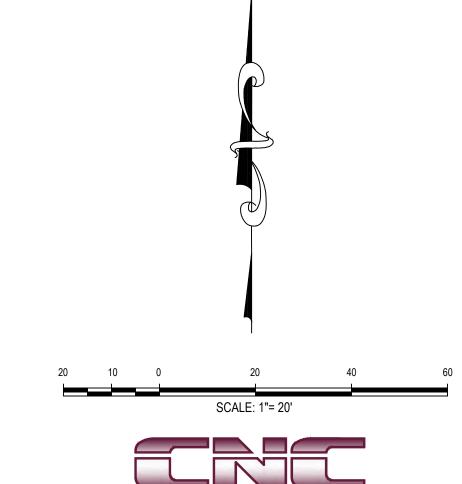






-/	
PROJECT NO.:	 .
DRAWN BY:	JBR
CHECKED BY:	JWP
ISSUED DATE: 1.0	8.2015
ISSUED REVISION	ONS:
<u> </u>	
<u>\$</u> .	
<u> </u>	
<u> </u>	
2 0	

Pavement Marking Plan

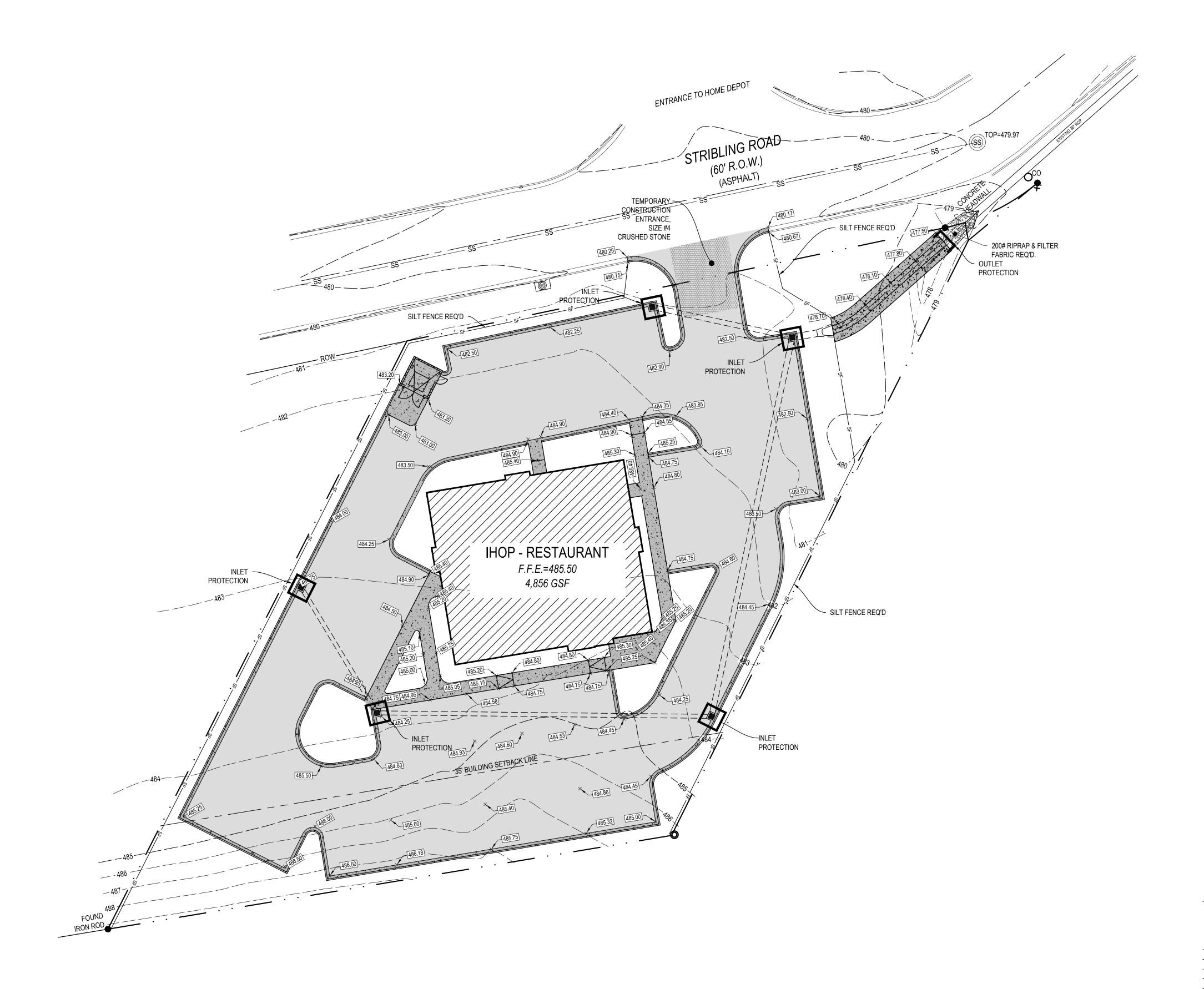


CHAS. N. CLARK ASSOC., LTD. Consulting Engineers

714 Hillcrest Dr. • Laurel, MS 39440 (Fax) 601-649-5963

LEGEND

EXISTING		PROPOSED	_
× 273.25	EXISTING SPOT ELEVATION EXISTING CONTOUR TELEPHONE PEDESTAL WATER METER POWER POLE ELECTRIC BOX GAS LINE WATER LINE SEWER LINE FIBER OPTIC LINE ELECTRIC & COMM. LINE DRAINAGE FLOW LINE EASEMENT LINE PROPERTY LINE		FINISHED GRADE SPOT ELEVATION PROPOSED CONTOUR POWER POLE STREET LIGHT WATER VALVE SEWER MANHOLE SEWER CLEANOUT CATCH BASIN UNDERGROUND ELEC. WATERLINE SEWER LINE STORM WATER LINE GAS LINE
	EXISTING PAVEMENT TO BE REMOVED		NEW ASPHALT PAVING NEW CONCRETE PAVING NEW GRASS

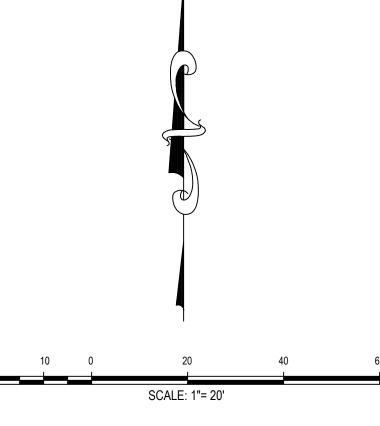








PROJECT NO.:	 .
DRAWN BY:	JBR
CHECKED BY:	JWP
ISSUED DATE:	2.27.2015
ISSUED REVI	SIONS:
<u> </u>	
<u> </u>	
<u> </u>	
<u>4</u>	
<u>\$</u>	
<u> </u>	
<u> </u>	



Water and sewer taps to be coordinated with the City of Brookhaven. Contractor to pay any required tapping fees.

This is not a survey
Property lines, legal description, topographic, and utility information and locations were furnished by our Client.

Exact location was not verified by any means other than stated above.

All utility companies should be notified to mark the exact location of underground utilities prior to commencement of construction.



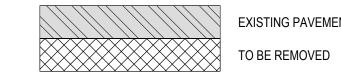
CHAS. N. CLARK ASSOC., LTD. Consulting Engineers

714 Hillcrest Dr. • Laurel, MS 39440 (Fax) 601-649-5963

LEGEND

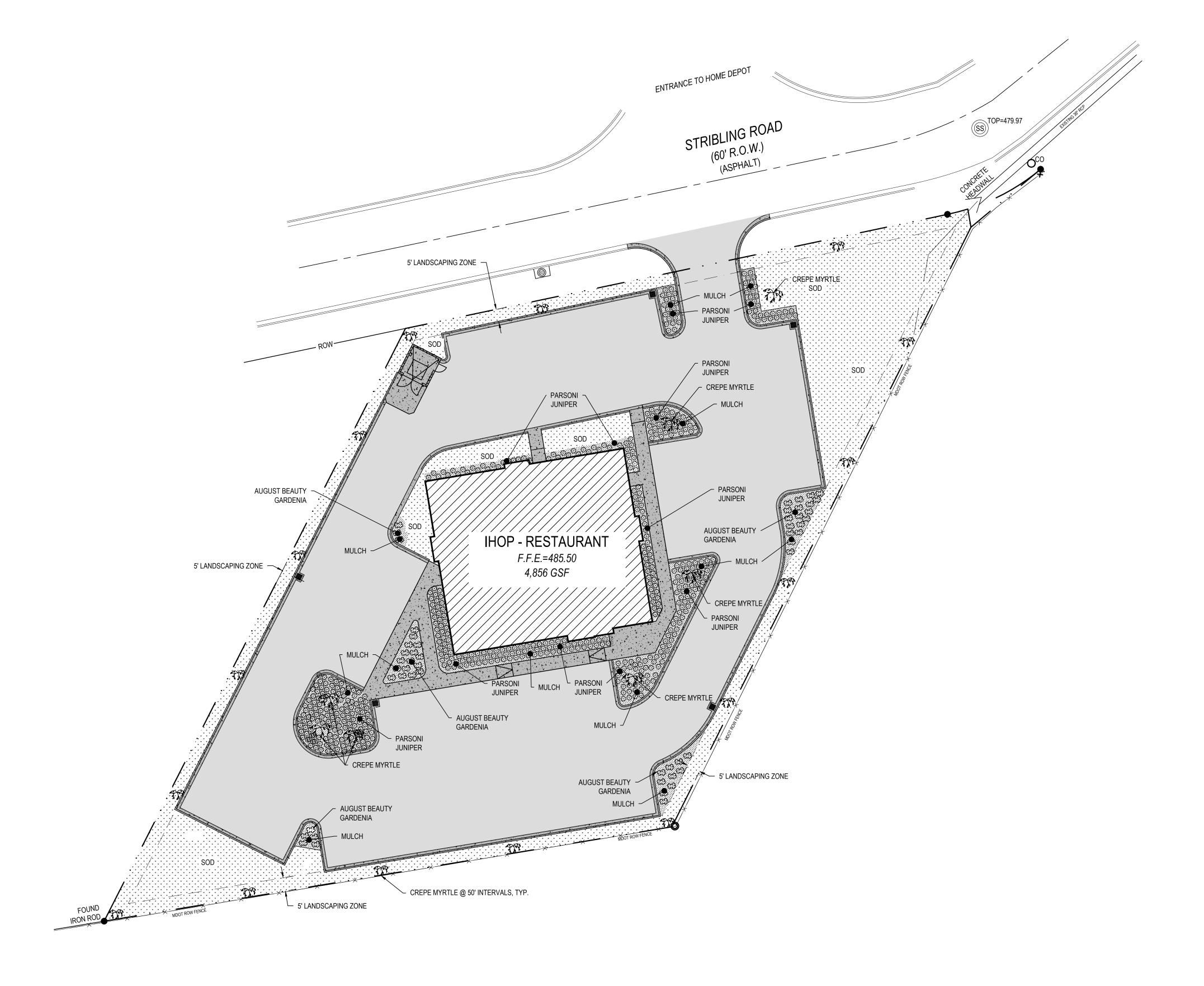
<u>EXISTING</u>		PROPOSED	
× 273.25 — — — — — — — — — — — — — — — — — — —	EXISTING SPOT ELEVATION EXISTING CONTOUR TELEPHONE PEDESTAL WATER METER POWER POLE ELECTRIC BOX GAS LINE WATER LINE SEWER LINE FIBER OPTIC LINE ELECTRIC & COMM. LINE DRAINAGE FLOW LINE EASEMENT LINE PROPERTY LINE	× 484.00 W CO UGE W SS SW GAS	FINISHED GRADE SPOT ELEVATION STREET LIGHT WATER VALVE SEWER CLEANOUT CATCH BASIN UNDERGROUND ELEC. WATERLINE SEWER LINE STORM WATER LINE GAS LINE

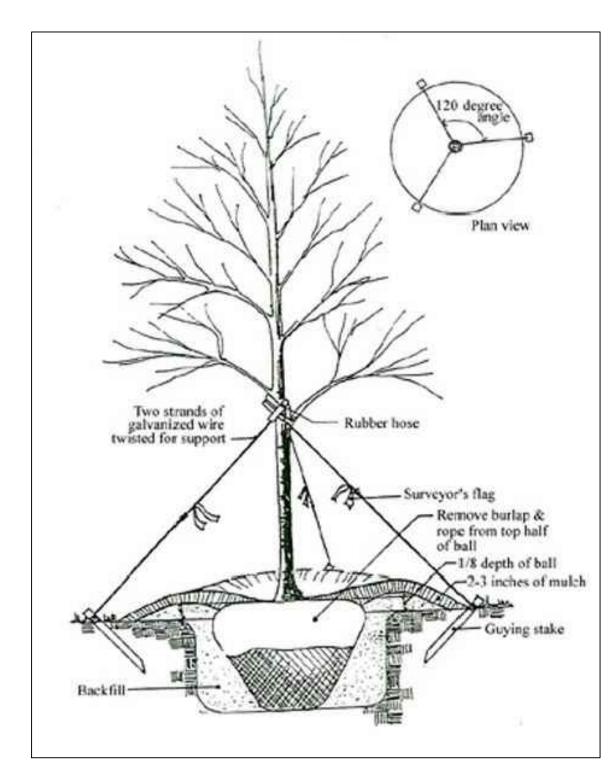
<u>HATCHING</u>



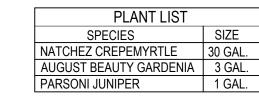
EXISTING PAVEMENT

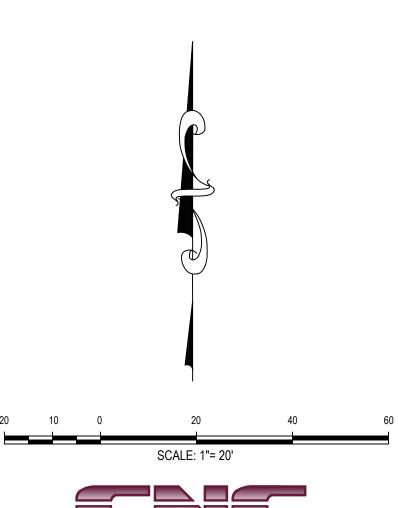






TREE STAKING DETAIL SCALE: 1"= 30'





CHAS. N. CLARK ASSOC., LTD. Consulting Engineers

C o n s u l t i n g E n g i n e e r

714 Hillcrest Dr. • Laurel, MS 39440
601-649-5900 • (Fax) 601-649-5963

LEGEND

EXISTING		PROPOSED	
× 273.25	EXISTING SPOT ELEVATION EXISTING CONTOUR TELEPHONE PEDESTAL WATER METER POWER POLE ELECTRIC BOX GAS LINE WATER LINE SEWER LINE FIBER OPTIC LINE ELECTRIC & COMM. LINE DRAINAGE FLOW LINE EASEMENT LINE PROPERTY LINE		FINISHED GRADE SPOT ELEVATION PROPOSED CONTOUR POWER POLE STREET LIGHT WATER VALVE SEWER MANHOLE SEWER CLEANOUT CATCH BASIN UNDERGROUND ELEC. WATERLINE SEWER LINE STORM WATER LINE GAS LINE
	EXISTING PAVEMENT TO BE REMOVED		NEW ASPHALT PAVING NEW CONCRETE PAVING



2138 N Cleveland Massillon Akron, Ohio 44333

t 330.659,3161 web louisandpartners.co

IP ALCELLECTED BLCCULTE PLLC litect: Paul David Waltz, AIA, NCARB, LEED BD+C

OF DOCUMENTS Drawings, specifications and other uments prepared by the Architect are instruments of the litect's service and are for the use solely with respect to this



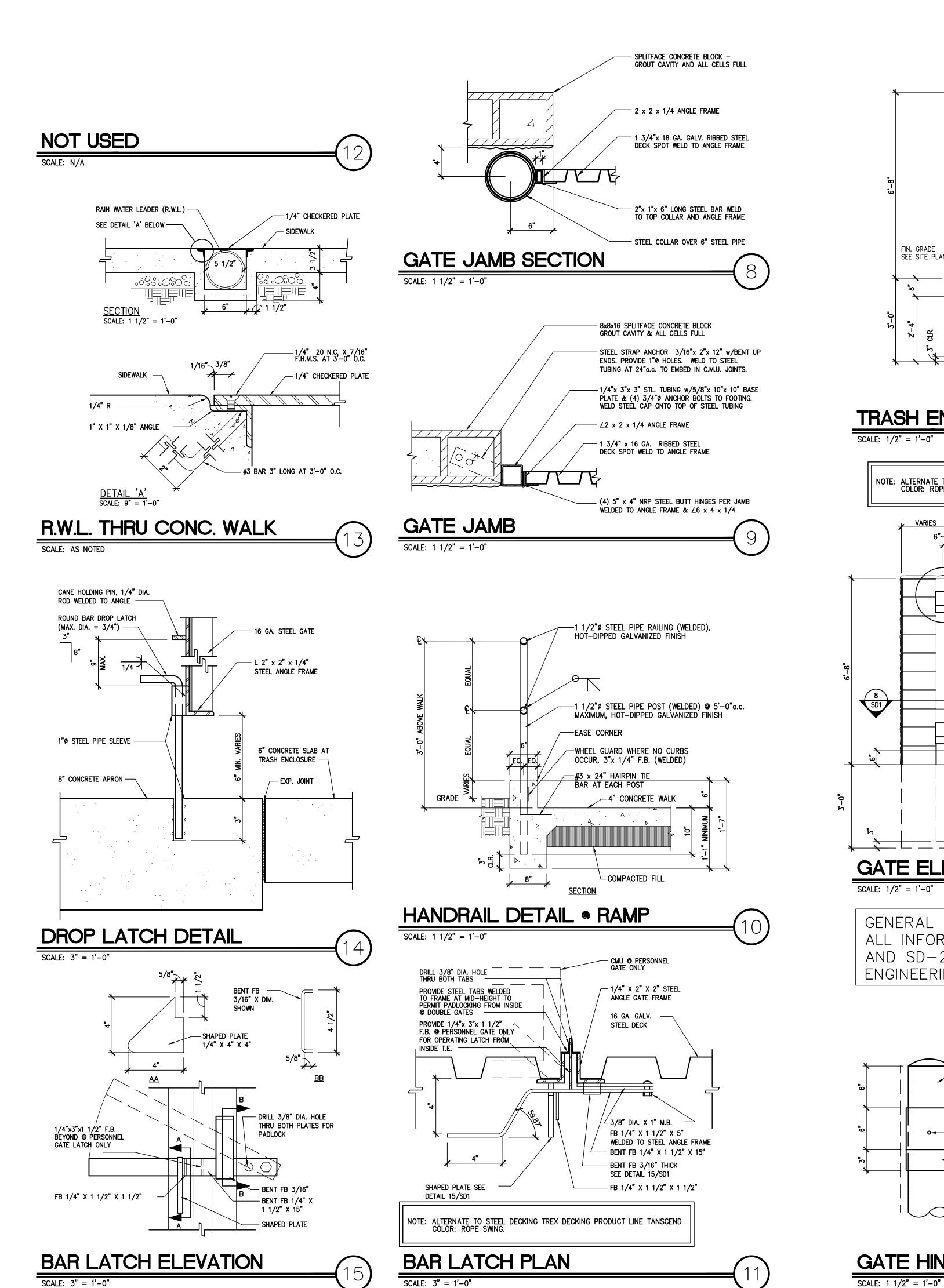
PROGRESS PRO

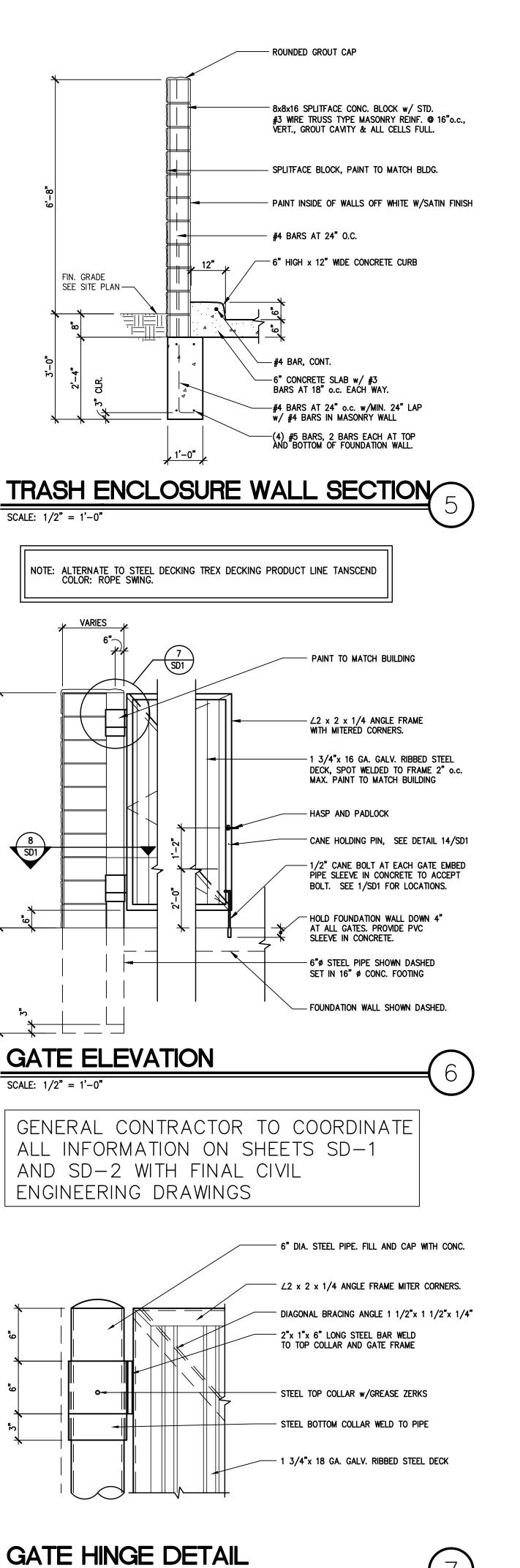
FROJE	PROJECT NO.:			
DRAWI	DRAWN BY:			
CHECK	CHECKED BY:			
ISSUEI	D DATE: 1.0	08.2015		
ISSU	JED REVISI	ONS:		
Λ				
<u> </u>				
<u> </u>				
4				
<u>\$</u>				
	•			
<u> </u>				
<u> </u>				
Brookhaven, MS 39601	ICON 3.0			

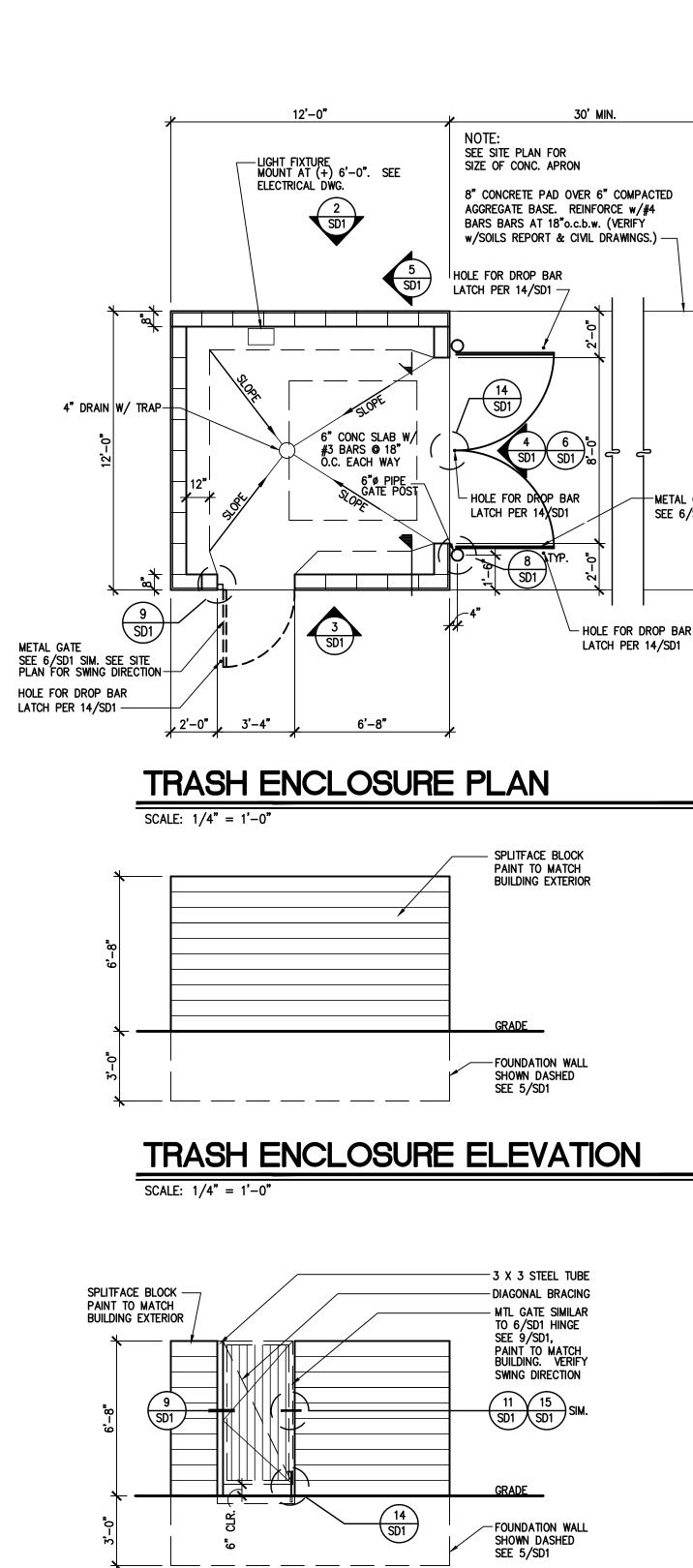
HOH

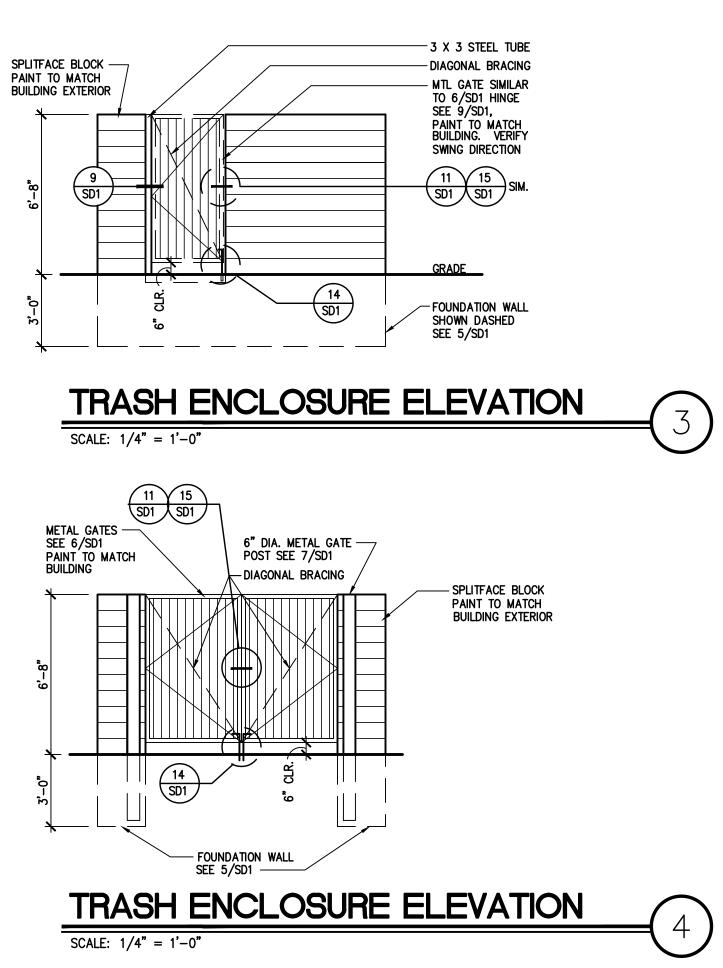
C3.1

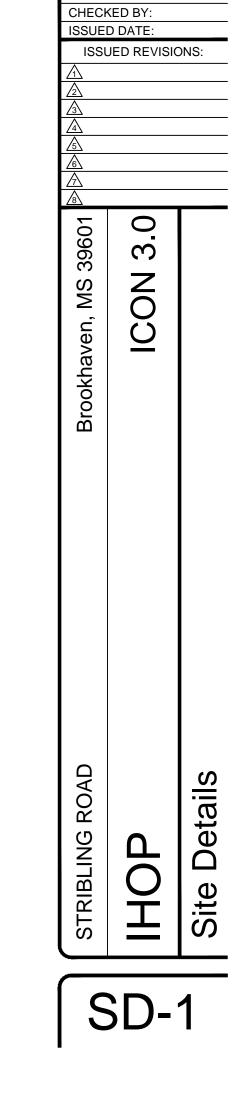
NEW GRASS











PROJECT NO.:

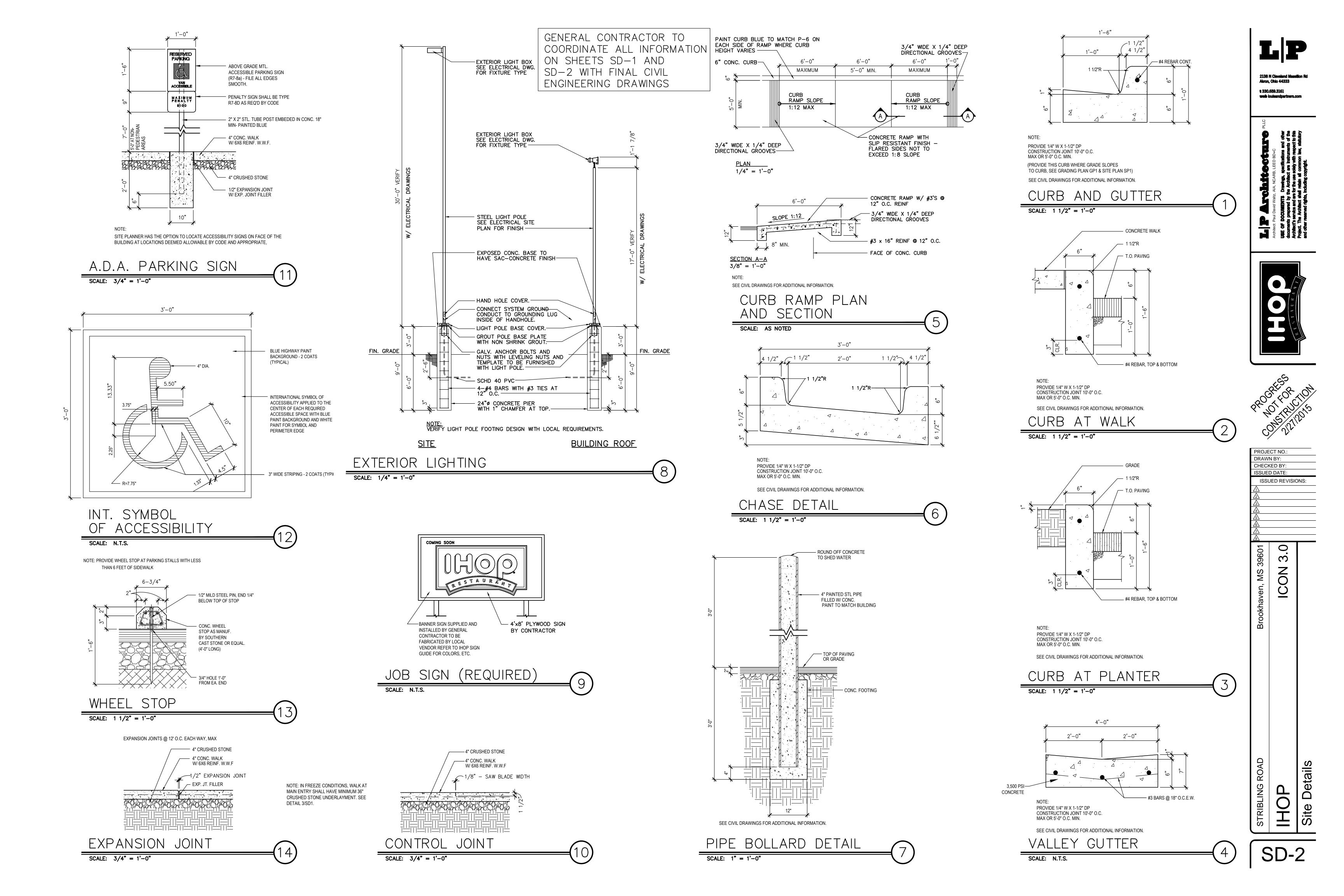
DRAWN BY:

Akron, Ohio 44333

t 330.659.3161

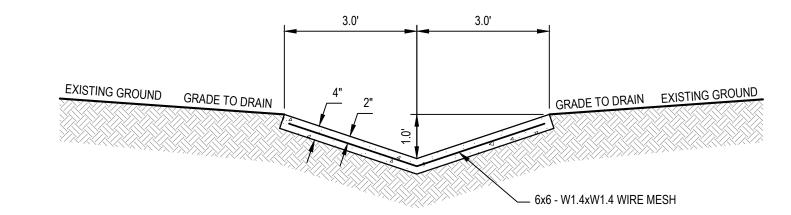
-METAL GATE

SEE 6/SD1



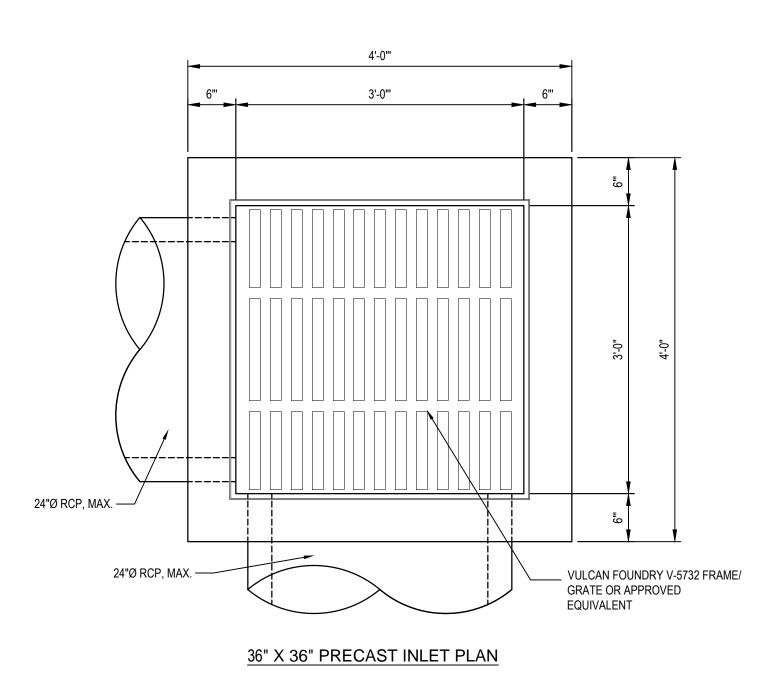


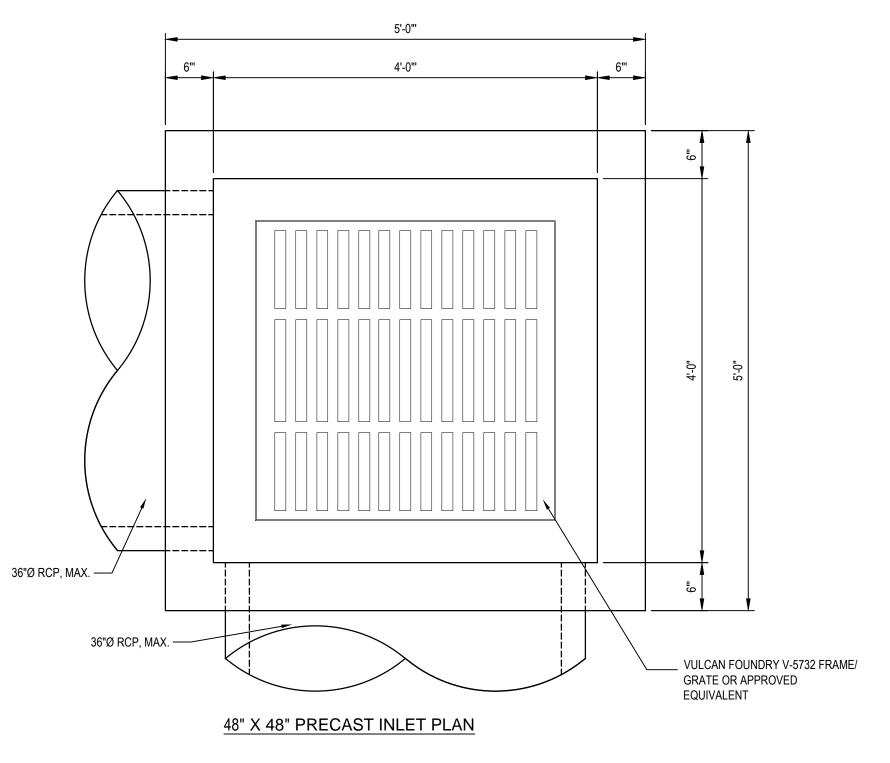
714 Hillcrest Dr. • Laurel, MS 39440 (Fax) 601-649-5963



CONCRETE V DITCH DETAIL

SCALE: NONE





GENERAL SPECIFICATIONS FOR PRECAST INLETS & JUNCTION BOXES

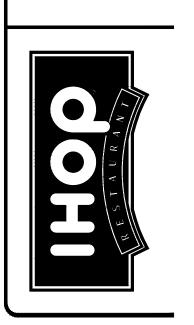
CONCRETE: 4,000 PSI IN 28 DAYS REINFORCEMENT: ASTM A-615, GRADE 60. LOADING AS PER AASHTO HS 20-44 PRECAST STRUCTURE: AS PER ASTM C-857-92 JOINT SEALANT: RAM-NEK GASKET MATERIAL OR APPROVED EQUIVALENT JUNCTION BOXES TO HAVE 6" REINFORCED CONCRETE SLAB FOR TOP

PRECAST INLET DETAILS SCALE: 1" = 1'-0"

GENERAL NOTES

- 1. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES, SHOWN OR NOT SHOWN ON THE PLANS. THE OWNER AND ENGINEER SHALL BE HELD BLAMELESS FOR ANY DAMAGE TO EXISTING UTILITIES CAUSED BY THE CONTRACTOR'S OPERATIONS.
- 2. EROSION CONTROL MEASURES SHALL BE APPLIED TO DISTURBED AREAS AS SOON AS PRACTICAL. THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN NECESSARY CONTROLS TO PREVENT EROSION AND SEDIMENT FROM ADVERSELY AFFECTING PROPERTY ADJACENT TO DISTURBED AREAS.
- 3. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING VEGETATIVE COVER ON ALL DISTURBED AREAS.
- 4. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF TRAFFIC, INCLUDING PROPER SIGNAGE AND PERSONNEL TO PROTECT WORKERS, EQUIPMENT, AND THE PUBLIC. TRAFFIC CONTROL DEVICES AND PROCEDURES SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.







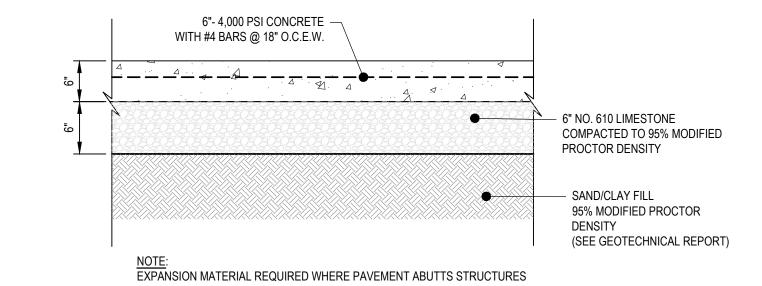
PROJECT NO.: DRAWN BY: CHECKED BY: JWP ISSUED DATE: 1/08/15 ISSUED REVISIONS:

> 3.0 CON

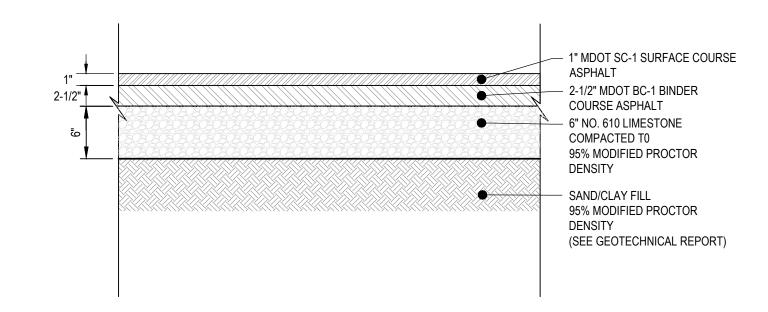
IHOP Site Details



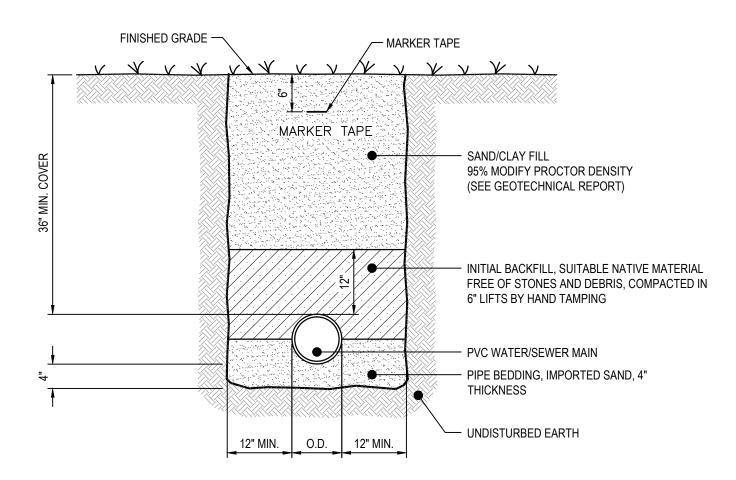
714 Hillcrest Dr. • Laurel, MS 39440 (Fax) 601-649-5963



1 HEAVY VEHICLE CONCRETE DETAIL
SD4 SCALE: N.T.S.



2 ASPHALT PAVEMENT
SD4 SCALE: N.T.S.



NOTES

1. NATIVE MATERIAL USED FOR BACKFILL MUST BE FREE OF STONES, DEBRIS, AND ORGANIC MATTER.

3 PVC PIPE TRENCH DETAIL

SCALE: N.T.S.



2138 N Cleveland Massillon Rd Akron, Ohio 44333 **t** 330.659.3161 **web** louisandpartners.com

Chitect: Paul David Waltz, AlA, NCARB, LEED BD+C

SE OF DOCUMENTS Drawings, specifications and other
comments prepared by the Architect are instruments of the
chitect's service and are for the use solely with respect to this
roject. The Architect shall retain all common law, statutory





PROJECT NO.:	
DRAWN BY:	JBR
CHECKED BY:	JWP
ISSUED DATE:	1/08/15
ISSUED REVIS	SIONS:
Δ	
\triangle	
\triangle	
<u> </u>	
\triangle	
<u> </u>	·
A	
\mathbb{A}	•

ICON 3.0

DIOOKIIAVEII, IV

HOP

SD4

A. Section includes: Provide all site clearing work B. Work under this Section shall include, but not be limited, to the following 1. Removal of trees and other vegetation. 2. Topsoil stripping and stockpiling.

3. Clearing and grubbing.

1.02 JOB CONDITIONS A. Conduct site clearing operations to insure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities B. Provide protection necessary to prevent damage to existing improvements indicated to

C. Protect improvements, trees, & vegetation on adjoining properties & on Owner's D. Restore damaged improvements to their original condition, as acceptable to parties having jurisdiction. E. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation indicated to remain in-place against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of trees by stockpilling construction materials or excavated materials within drip line, excess foot or vehicular traffic or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.

Provide protection for roots over 1½ inch in diameter that are cut during construction operations. Coat cut faces with an emulsified asphalt or other acceptable coating formulated to use on damaged plant tissues. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth

Repair or replace trees and vegetation indicated to remain that are damaged by construction operations in a manner acceptable to landscape architect or arborism Employ a licensed arborist to repair damage to trees and shrubs. Replace trees that cannot be repaired and restored to full growth status, as determined by arborist. F. Existing Utility Services:

 Refer to the "Structure Demolition" Section 02221 of these specifications for removing or abandoning utility services. G. Related work: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications. 2. Section 02200 - Earthwork

1. General: Determine exact locations before commencing work.

1.02 QUALITY ASSURANCE:

2.01 MATERIALS:

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this PART 2 - PRODUCTS

2.02 PERMITS, ORDINANCES, ETC.: A. Procure all necessary permits or certificates required to complete the Work specified.

Make any and all required notifications and comply with all applicable federal, state

A. Provide materials, not specifically described but required for proper completion of the work of this Section, as selected by the Contractor subject to the approval of the

PART 3 - EXECUTION

3.01 CONDITIONS AT SITE: A. All work shall be executed in an orderly and careful manner with due consideration for any and all surrounding areas, planting or structures which are to remain. B. Periodically water as required to allay dust and dirt.

3.02 PROTECTION:

A. Protect existing utilities which are to remain, and relocate existing utilities where needed and indicated on the drawings. B. Protection of persons and property. Barricade open depressions and holes occurring as part of this Work, and post warning lights on property adjacent to or with public access. 2. Operate warning lights during hours from dusk to dawn each day & as otherwise

Protect adjacent structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by operations under this Section. C. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site. D. Maintain access to the site at all times.

5.03 CLEARING AND GRUBBING: A. Clear site of trees, shrubs and other vegetation, except for those indicated to be left Completely remove stumps, roots, and other debris protruding through ground surface.

2. Use only hand methods for grubbing inside drip line of trees indicated to be left Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated. Place fill material in horizontal layers not exceeding 6" loose depth, and thoroughly compact to a density equal to adjacent original ground.

B. Any other loose, disturbed, saturated or otherwise undesirable materials, as identified by the Geotechnical Engineer, also shall be removed. C. Abandoned underground pipes shall be removed. D. Grade surface to drain such that no pot holes exist and in accordance with finish E. General: Remove trees, shrubs, grass and other vegetation, improvements, and

F. Carefully and cleanly cut roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction. 3.04 DISPOSAL OF WASTE MATERIALS

 A. Burning on Owner's Property: Burning is not permitted on owner's property unless a permit is obtained from the local jurisdiction. B. Removal from Owner's Property: Remove waste materials and unsuitable and excess topsoil from Owner's property and dispose of offsite in legal manner. C. Remove all remaining, brush, grass, roots, trash, and other material from clearing operations and dispose of away from the site in a legal manner. D. Do not store or permit debris to accumulate on the job site.

A. Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4". Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2" in diameter, and without weeds, roots, and other objectionable Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material.

2. Remove heavy growths of grass from areas before stripping. Stockpile topsoil in storage piles in areas shown, or where directed. Construct storage piles to freely drain surface water. Cover storage piles if required to prevent wind_blown dust. 4. Dispose of unsuitable or excess topsoil same as waste material, herein specified.

3.06 EROSION CONTROL A. Control soil erosion from the site prior, during and after construction. B. Construct erosion control facilities as required or in accordance with the erosion control plan prepared for the project. C. If an erosion control plan was not required for the project, grade the surface of the site so that water does not accumulate in the construction area or run off into excavations, and construct and maintain silt fences for erosion control.

A. Remove from the site all rubbish, debris, etc., resulting from work under this contract. END OF SECTION

SECTION 312000 - EARTH MOVING

1.00 GENERAL Division 1 requirements apply to this Section.

1.01 SUMMARY A. Section includes: Earthwork.

B. Work included under this Section shall include, but not be limited, to the following: 1. Preparation of subgrade for building slabs, walks, and pavements. 2. Drainage fill course for support of building slabs. 3. Backfilling of trenches within building lines. Excavation and backfill required in conjunction with underground mechanical and electrical utilities, and buried mechanical and electrical appurtenances.

5. Subbase course for walks and pavements. 6. Subsurface drainage backfill for walls and trenches 7. Erosion control provision and removal.

C. A Fill Compaction Report shall be provided. Where earthwork is being done by the landlord, the contractor shall obtain a copy of the Compaction Report and verify that the earthwork has been completed in accordance with the Soils Report. Where the earthwork is to be done by the Contractor, the Contractor shall retain a qualified geotechnical engineer and shall provide the Owner a copy of the Compaction Report. D. Earthwork for each site shall be done in accordance with the following: Notes and Specifications on the Drawings shall supersede the recommendations of the Geotechnical Report and this Section 02200 - Earthwork.

2. Recommendations in the Geotechnical Report shall be reviewed by the Contractor. Contractor shall provide unit pricing for the options presented in the Geotechnical Report. The Guide Specifications in the Geotechnical Report shall supersede this Section 02200 — Earthwork.

3. When there is no specific earthwork information on the Drawings or in the Geotechnical Report, the Contractor may use this Section 02200 — Earthwork

1.02 QUALITY ASSURANCE

A. Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction. B. Testing and Inspection Service Contractor to employ IHOP's (of record) testing laboratory to perform soil testing and inspection service for field quality control testing during earthwork operations.

 Testing and Inspection Services — Allow Testing and Inspection Service to inspect, test, approve each subgrade and each fill or backfill layer. Do not proceed with further construction work until test results for previously completed work verify compliance with requirements.

When Testing and Inspection Service reports that subgrades, fills or backfills are frozen, or do not satisfy the "Moisture Control" and "Compaction" sections of these specifications, thaw frost, scarify, moisten or dry or remove and replace soil to the depth required, recompact and retest until these specifications are satisfied. 3. Footing Subgrade: For each strata of soil on which footings will be placed, conduct at least one bearing capacity test to verify required design bearing capacity. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata.

4. Paved Areas and Building Slab Subgrade: Make at least one field density test of subgrade for every 2000 sq. ft. of paved area and building slab, and as directed. In each compacted fill lift, make one field density test for every 2000 sq. ft. of overlaying building slab and paved area, and as directed by Project manager. Foundation Wall Backfill: Take at least 2 field density tests, at locations and elevations as directed by Project Manager.

D. Refer to Section 01400 — Quality Control Services, for testing procedures and

1.03 SUBMITTALS A. Submit field Quality Control Compaction Reports in accordance with Section 01300 -

A. Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operation Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate wit Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, during occupied hours, except when permitted in writing by the Project Manager and then only after acceptable temporary utility services have been provided.

3. Provide minimum of 48 hour notice to Owner and Utility Owner and before

2.01 SOIL MATERIALS

 Base Course Material: Approved naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed slag, natural or crushed sand. 2. Drainage Fill: Washed, evenly graded mixture of crushed stone or crushed or uncrushed gravel, ASTM Specifications D-488, coarse aggregate grading size 57, with 100 percent by weight passing a 1% inch sieve and not more than 5 percent by weight passing a No. 8 sieve that is placed and compacted in accordance with the "Moisture Control" and "Compaction" sections of these specifications. 3. Backfill and Fill Materials: Satisfactory soil material that is placed and compacted in accordance with the "Moisture Control" and "Compaction" sections of these specifications.

 a. Top 12 inches of compacted fill – Satisfactory soil materials that do not contain rock or gravel larger than 2" in any dimension. 4. Filtering Material: Evenly graded mixture of natural or crushed gravel or crushed stone and natural sand, with 100 percent by weight passing a 1½ inch sieve and to 5 percent by weight passing a No. 50 sieve that is placed and compacted in accordance with the "Moisture Control" and "Compaction" sections of these specifications.

5. Impervious Fill: Clayey soils approved for use for a specific application by the geotechnical report for the project or by the Testing and Inspection Service, that is placed and compacted in accordance with the "Moisture Control" and "Compaction" sections of these specifications. Aggregate Base Course Fill: Sound, angular crushed stone, crushed gravel, or crushed slag, sand, stone or slag screenings conforming to ASTM C-136, C-117.

3.00 EXECUTION

3.02 PREPARATION A. Protect structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations. B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.

C. Provide erosion control measures as specified in the "Site Clearing" section of these D. Tree protection is specified in the "Site Clearing" section of these specifications.

3.03 EXCAVATION

 Excavation is unclassified, and includes excavation to subgrade elevations indicated, regardless of character of materials and obstructions encountered. Jauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions. Unauthorized excavation shall be at Contractor's expense Under footings, foundation bases, and retaining walls, fill unauthorized excavation
by extending indicated bottom elevation of footing to excavation bottom, without
aftering required top elevation. Lean concrete fill may be used to bring elevation
to proper position, when acceptable to the Owner's Representative.

Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification. Additional Excavation: When excavation has reached required sub_grade elevations notify a qualified geotechnical engineer who will make an inspection of conditions. If unsuitable bearing materials are encountered at required sub_grade elevations, carry excavations deeper and replace excavated material as directed. 2. Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.

D. Stability of Excavations: Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. . Maintain sides and slopes of excavations in safe condition until completion of Notify as soon as possible the owner's project manager and geotechnical engineer, if springs or water seepage are encountered in excavations.

E. Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross_braces, in good serviceable condition. Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses. Dewatering: Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

1. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations. G. Excavation for Structures: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10', and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, and installation

 In excavating for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work. I. Excavation for Trenches: Dig trenches to the uniform width required for particula item to be installed, sufficiently wide to provide ample working room. Provide 6" 9" clearance on both sides of pipe or conduit.

 Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations. Beyond building perimeter, keep bottoms of trenches sufficiently below frost line to avoid freeze_ups. conduit units, do not excavate beyond indicated depths. Hand excavate bot cut to accurate elevations and support pipe or conduit on undisturbed soil. For pipes or conduit 6" or larger in nominal size, tanks and other mechanical/electrical work indicated to receive subbase, excavate to subbase depth. Except as otherwise indicated, excavate for exterior water bearing piping (water, steam, condensate, drainage) so top of piping is 6" below the local freeze line.

Grade bottoms of trenches as indicated, notching under pipe bells to provide solid continuous bearing for entire body of pipe. Backfill trenches with concrete where trench excavations pass within 18" of column and wall footings and which are carried below bottom of such footings, and which pass under wall footings. Place concrete to level of bottom of adjacent footing. Do not backfill trenches until tests and inspections have been made and backfilling authorized. Use care in backfilling to avoid damage and displacement of pipe

8. Cold Weather Protection: Protect excavation bottoms against freezing when atmospheric temperature is less than 35 deg. F (1 deg. C). Approval of Subgrade: Notify Owner's Project Manager, geotechnical engineer or Testing and Inspection Service when excavations have reached required subgrade. . When Owner's Project Manager, IHOP, geotechnical engineer or Testing and Inspection Service determines that unforeseen unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed. Unforeseen additional excavation and replacement material will be paid according to the contract provisions for changes in work. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water or construction activities, as directed by Owner's Project Manager, geotechnical engineer, or Testing and Inspection Service.

A. General: Control soil compaction during construction providing minimum percentage of density specified for each area classification indicated below. B. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum density. Structures, Building Slabs and Steps, Pavements: Complete structural fill soil compaction in accordance with the Project Geotechnical Report and the General Structural Notes. Compaction shall be at least 95 percent of the maximum dry density per ASTM D-698. Lawn or Unpaved Areas: Compact top 6" of subgrade and each lift of backfill and fill material to at least 90 percent of the maximum dry density per ASTM D-698.

 Walkways: Compact top 6" of subgrade and each layer of backfill and fill materia to at least 95 percent of the maximum dry density per ASTM D-698. C. Moisture Control: Uniformly moisten or dry subgrade and soil materials for each subsequent layer before compaction to within -1 to +3 percent of optimum moisture content for cohesive soils and to within -3 to +3 percent of optimum moisture content for granular soils or as recommended by. the geotechnical report for the project; or the geotechnical engineer; or the Testing and Inspection Services, with the optimum moisture content determined by ASTM Specification D-698 Standard Proctor Compaction Test. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value as noted in C. above.

3.05 BACKFILL AND FILL A. Preparation — Remove vegetation, topsoil, debris, wet and unsatisfactory soil materials, obstructions and deleterious materials from ground surface prior to placing fills in accordance with the "Site Clearing" section of these specifications. Step, bench, plow strip or break up sloped surfaces steeper than 1 vertical to 5 horizontal so fill material will bond with existing surface.

B. When subgrade or existing ground surface to receive fill has a density less than that required for fill, prooffoll with heavily loaded rubber—tired construction equipment such as an approved tandem axle 20 ton dump truck prior to placement of fill. At areas that are soft, loose or show excessive yielding, undercut and place and compact fill or backfill. . Backfill excavations as promptly as work permits, but not until completion of the

 Acceptance of construction below finish grade including, where applicable, damp proofing, waterproofing, and perimeter insulation. 2. Inspection, testing, approval, and recording locations of underground utilities. 4. Removal of shoring and bracing, and backfilling of voids with satisfactory material Cut off temporary sheet pilling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if

5. Removal of trash and debris. 6. Permanent and temporary horizontal bracing is in place on horizontally supported D. Placement and Compaction: Place backfill and fill materials in lifts not more than 8" in loose depth for material compacted by heavy compaction equipment, and not more than 4" in loose depth for material compacted by hand_operated tampers.

 Before compaction, moisten or aerate each layer as necessary to provide optimum
moisture content. Compact each lift to required percentage of maximum dry
density or relative dry density for each area classification. Do not place backfill or
fill material on surfaces that are muddy, frozen, or contain frost or ice. 2. Place backfill and fill materials evenly adjacent to structures, piping and conduit to required elevations. Take care to prevent wedging action of backfill against structures and displacement of piping and conduit by carrying material uniformly around structure, piping and conduit to approximately same elevation in each lift.

A. General: Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels and slopes between points where elevations are indicated, nd between such points and existing grades. B. Grading Outside Building Lines: Grade areas adjacent to building lines to drain away from structures and to prevent ponding. C. Finish surfaces free from irregular surface changes, and as follows: Lawn or Unpaved Areas:. Finish areas to receive topsoil to within not more than ± 0.10 foot above or below required subgrade elevations.

2. Pavernents: Shape surface of areas under pavernent to line, grade and cross—section, with finish surface not more than ½" above or below required subgrade elevation.

 Grading Surface of Fill under Building Slabs: Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of ½" when tested with a 10' straightedge. within a tolerance of 12 when tested with a 10 straighteage.

4. Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage of maximum density for each area classification. For soil materials compacted by heavy compaction equipment, place in layers not more than 8 inches in loose depth for foundations and not more than 10 inches in loose depth for floor slabs and pavements. Place soil materials not more than 4 inches in loose depth for material compacted by hand—operated tampers. Place backfill, fill or special materials such as drainage fill or impervious fill where required, evenly on all sides of structures to required elevations, and uniformly along the full length of each structure. The minimum percent of compaction shall be as noted in Section 3.04.

3.07 PAVEMENT BASE COURSE A. General: Base course consists of placing base course material, in lifts of specified thickness, over subgrade surface to support a pavement base course.

B. See other Division 2 sections for paying specifications. C. Grade Control: During construction, maintain lines and grades including crown and cross slope of base course. D. Placing: Place base course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross_section and thickness. Maintain optimum moisture content for compacting base material during placement operations. When thickness of compacted base course is 6 inches or less, place materials in a single layer. When thickness of compacted subbase or base course exceed 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.

E. Place base course material to the following compacted thicknesses or as recommended in the geotechnical report for the project, whichever is thicker 1. Walks – 6 inches 2. Bituminous Pavement, Parking Areas — 6 inches 5. Bituminous Pavement, Drive Areas — 8 inches

4. Concrete Pavement — 6 inches 3.08BUILDING SLAB DRAINAGE COURSE A. General: Drainage course consists of placement of drainage fill material, in layers of indicated thickness, over subgrade surface to support concrete building slabs. B. Placing: Place drainage fill material on prepared subgrade in layers of uniform thickness, conforming to indicated cross_section and thickness. Maintain optimum moisture content for compacting material during placement operations. C. Install below slab vapor barrier over the entire interior slab area and down the inside of perimeter stem walls when indicated. All joints in the vapor barrier shall be lapped a minimum of 12° and taped or otherwise secured in place. Ensure that vapor barrier is continuous and without openings prior to placement of concrete slab as specified in Section 03310, Concrete Work.

3.09 DRAINAGE FILL

. Under slabs—on—grade, place drainage fill course on prepared subgrade. B. Compact drainage fill to required cross sections and thickness. C. When compacted thickness of drainage fill is 6 inches or less, place materials in a single layer. D. When compacted thickness of drainage fill exceeds 6 inches thick, place materials in equal layers with no layer more than 6 inches thick nor less than 3 inches thick when

3.10 PROTECTION A. Protecting Graded Areas — Protect newly graded areas from traffic, freezing and erosion. Keep free of trash and debris. B. Repair and re-establish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled or lose compaction due to subsequent construction operations or weather conditions. Scarify or remove and replace material to depth directed by the geotechnical engineer of Testing and Inspection Service, reshape and recompact to satisfy these specifications.

C. Settling – Where settling occurs during the project correction period, remove finished surfacing, backfill with additional approved material, compact and reconstruct surfacing to satisfy these specifications. Restore appearance, quality and condition of finished surfacing to match adjacent work and eliminate evidence of restoration to the

A. Disposal — Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash and debris and legally dispose of it off the Owner's property. Remove waste material including unsatisfactory soil, trash and debris, and legally dispose of it off the Owner's property

END OF SECTION

SECTION 313116 - TERMITE CONTROL WORK 1.00 GENERAL Division 1 requirements apply to this Section

A. Section includes: Provide all termite control work.

A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work, including preparation of substrate of B. Engage a professional pest control operator, licensed in accordance with regulations of governing authorities for application of soil treatment solution.

C. Use only termiticides which bear a Federal registration number of the U.S. 1.03 JOB CONDITIONS A. Restrictions: Do not apply soil treatment solution until excavating, filling and grading operations are completed, except as otherwise required in construction operations. B. Do not apply soil treatment to frozen or excessively wet soils or during inclement weather. Comply with handling and application instructions of the soil toxicant

A. Furnish written five (5) year warranty certifying that applied soil termiticide treatment will prevent infestation of subterranean termites and, that if subterranean termite activity is discovered during warranty period, retreatment of soil and repair or replacement of damage caused by termite infestation will be provided.

2.00 PRODUCTS

2.01 SOIL TREATMENT SOLUTION . Use an emulsible concentrate termiticide for dilution with water, specially form

1. Chloropyrifos ("Dursban TC"); 1.0% in water emulsion. 2. Permathrin ("Dragnet", "Torpedo"); 0.5% in water emulsion. B. Other solutions may be used if approved by local governing authorities. Use only soil treatment solutions which are not injurious to planting.

A. Surface Preparation: Remove foreign matter which could decrease effectiveness of treatment on areas to be treated. Loosen, rake and level soil to be treated, except previously compacted areas under slabs and foundations. B. Application Rates: Apply fill material within 24 hours of soil treatment solution as

 Under slab_on_grade structures, treat fill material before concrete slabs are placed, using the following rates of application: a. Apply 4 gallons of chemical solution per 10 lin. ft. to soil in critical areas under slab, including entire inside perimeter of foundation walls, around plumbing pipes and electric conduit penetrating slab, and around interior column footers. b. Apply 1 1/2 gallon of chemical solution per 10 sq. ft. as an overall treatment under slab and attached slab areas 5 feet outside building line.

At expansion joints control joints, and areas where slabs will be penetrated, apply at rate of 4 gals. per 10 lin. ft. of penetration. C. Reapply soil treatment solution to areas disturbed by subsequent excavation, landscape grading, and other construction activities following application.

FND OF SECTION

DIVISION 32 - EXTERIOR

IMPROVEMENTS SECTION 321216 - ASPHALTIC PAVING

1.00 GENERAL Division 1 requirements apply to this Section

A. Section includes: Provide all asphaltic concrete paying work. B. Asphalt concrete paving for each site shall be done in accordance with the 1. Notes and Specifications on the Drawings shall supersede the

recommendations of the Geotechnical Report and this Section 02513—Asphaltic Concrete Paving. 2. Recommendations in the Geotechnical Report shall be reviewed by the Contractor. Contractor shall provide unit pricing for the options presented in the Geotechnical Report. The guide specifications in the Geotechnical Report shall supersede this Section 02513 — Asphaltic Concrete Paving. 3. When there is not specific paving information on the Drawings or in the Geotechnical Report, the Contractor shall use the appropriate State Department of Transportation specifications or may use this Section 02513—Asphaltic Concrete Paving.

A. Codes and Standards: Comply with State highway or transportation department standard specifications, latest edition, and with local governing regulations if

R. Construct asphalt concrete surface course when atmospheric temperature is

above 40 dea.F (4 dea.C), and when base is dry. Base course may be placed

when air temperature is above 30 deg.F (-1 deg.C) and rising. C. Grade Control: Establish and maintain required lines and elevations

A. General: Use locally available materials and gradations which exhibit of satisfactory record of previous installations.

when base is wet or contains an excess of moisture.

B. Binder Course Aggregate: Approved sound, angular crushed stone, crushed gravel, or crushed slag, sand, stone or slag screenings conforming to ASTM C136, C117. C. Surface Course Aggregate: Crushed stone, crushed gravel, crushed slag, and sharp edged natural sand. The composite material shall be uniformly graded from coarse to fine and shall conform to the following grades: 1. Mix Designating C-3/4 Sieve Size Percent Passin

3/4" 90-100 75-100 30-55 No. 8

No. 300 15-35 No. 200 D. Asphalt Cement: AASHTO M 226 (ASTM D 3381) for viscosity graded materia and AASHTO M 20 (ASTM D 946) for penetration graded material. 1. Asphalt cement shall conform to the requirements of AI PCD-7 per schedule

below. Mixing temperature shall be not less than 250 degrees F., or higher than 325 degrees F. a. Grade AR 4000, October through May b. Grade AR 8000, June through September

The amount of asphalt cement, by weight, to be added to the aggregate shall be 5.2 to 5.8 percent of the weight of the admixture. E. Prime Coat: Cut back asphalt type; AASHTO M 82 (ASTM D 2027) MC30, MC70 or MC250. Tack Coat: Emulsified asphalt; AASHTO M 140 (ASTM D 977) or M 208 (D 2397); SSI, SSIh, CSSI or CSSIh, diluted with one part water to one part emulsified asphalt.

G. Herbicide Treatment: Commercial chemical for weed control shall be registered by Environmental Protection Agency. Weed control chemical shall be "Barrier 50W" (Dichlogenil) as manufactured by PBI/Gordon Corporation, Kansas City, M H. Lane Marking Paint: Chlorinated rubber alkyd type, AASHTO M 248 (FS TTP115), Type III, color, white, (2 coats).

2.02 ASPHALT AGGREGATE MIXTURE A. Provide plant mixed, hot laid asphalt aggregate mixture complying with ASTM D

3.00 EXECUTION

A. Compact top 12 inches of sub-base to 95% as per ASTM D-1557. Remove loose material from compacted sub-base surface immediately before applying

B. Proofroll prepared base course and subgrade surface to check for unstable areas and areas requiring additional compaction C. Do not begin paying work until deficient base course and subgrade greas have been corrected and are ready to receive paying. D. Herbicide Treatment: Apply chemical weed control agent in strict compliance with manufacturer's recommended dosages and application instructions. Apply to compacted, dry subbase prior to application of prime coat. E. Prime Coat: Apply at rate of 0.20 to 0.50 gal. per sq. yd., over compacted

subgrade. Apply material to penetrate and seal, but not flood, surface. Cure and dry as long as necessary to attain penetration and evaporation of volatile F. Tack Coat: Apply to contact surfaces of previously constructed asphalt or portland cement concrete and surfaces abutting and projecting into asphal concrete pavement. Distribute at rate of 0.05 to 0.15 gal. per sq. yd. of

G. Allow to dry until at proper condition to receive paying. H. Exercise care in applying bituminous materials to avoid smearing of adjoining

3.02 PLACING MIX A. General: Place asphalt concrete mixture on prepared surface, spread and strike off. Spread mixture at minimum temperature of 225 deg.F (107 deg.C). Place inaccessible and small areas by hand. Place each course to required grade, cross section, and compacted thickness. B. Paver Placing: Place in strips not less than 10' wide. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap C. Joints: Make joints between old and new pavements, and between successive

days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density and smoothness as other sections of asphalt concrete course. Clean contact surfaces and apply tack coat. A. General: Begin rolling when mixture will bear roller weight without excessive B. Compact mixture with hot hand tampers or vibrating plate compactors in areas

inaccessible to rollers. C. Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling, and repair displaced areas by loosening and filling, if required, with hot material. D. Second Rolling: Follow breakdown rolling as soon as possible, while mixture is hot. continue second rolling until mixture has been thoroughly compacted. E. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained the specified percentage of the maximum density. F. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut_out such areas and fill with fresh, hot asphalt concrete.

3.04 TRAFFIC AND LANE MARKINGS A. Cleaning: Sweep and clean surface to eliminate loose material and dust. B. Apply paint with mechanical equipment to produce uniform straight edges. Apply in 2 coats at manufacturer's recommended rates, i.e. 1 gallon per 150

G. Protection: After final rolling, do not permit vehicular traffic on pavement until

C. Provide lane markings, arrows, and symbols as indicated. 3.05 FIELD QUALITY CONTROL

cosmetic issues not covered).

A. General: Test in place asphalt concrete courses for compliance with requirements for thickness and surface smoothness as directed. Repair or remove and replace unacceptable paving as directed. B. The finished surface shall be smooth and to specified grade. Paving shall have the thickness specified and shall not vary more than 1/8" from the specified 1. Spots deficient in thickness shall be cut out and replaced with fresh mixture

which shall be properly bonded to the existing pavement. 2. The finished surface shall not have depressions in excess of 1/8" when measured with a 10 foot straight edge. Immediately after the initial rolling, 3. After the final rolling, the surface shall be tested again and all irregularities defective Work and replacing with new material. C. Materials analysis samples and compaction tests shall be made by an approve independent testing laboratory at a frequency directed by the Owner's Project Manager, but not less than 4 core samples. Samples to be 4" cores at each

D-2041-surface course Density testing shall also be performed during asphalt placement. Core samples are destructive tests and recommend cores be taken 4.0 PAVING GUARANTEE A. 2 year structural failure for IHOP constructed paving only (minor cracking or

END OF SECTION

5,000 sq. yd. at random locations. Test cores as per ASTM D-3549—thickness and density, to a tolerance 1/4", ASTM D-2167-base course, ASTM

SECTION 321313 - CONCRETE PAVING

1.00 GENERAL Division 1 requirements apply to this Section

1.01 SUMMARY A. Section includes: Provide all portland cement concrete paving work.

B. Concrete paying for each site shall be done in accordance with the following Notes and Specifications on the Drawings shall supersede the recommendations of the Geotechnical Report and this Section 02514 — Portland Cement Concrete Paving. 2. Recommendations in the Geotechnical Report shall supersede this Section 3. When there is not specific Paving information on the Drawings or in the Geotechnical Report, the Contractor shall use the appropriate State Department of Transportation specifications or may use this Section 321313

A. Codes and Standards: Comply with local governing regulations if more stringent than herein specified.

C. Recommend that concrete compressive strength test cylinders be made

B. Do not place concrete when base surface temperature is less than 35 degrees

2.01 MATERIALS A. Forms: Steel, wood, and other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects. A. Weather Limitations: Apply prime and tack coats when ambient temperature is above 50 deg.F (10 deg.C), and when temperature has not been below 35 deg.F (1 deg.C) for 12 hours immediately prior to application. Do not apply B. Reinforcing Bars:

volume) mineral spirits, complying with AASHTO M 233

F and rising or surface is wet or frozen.

1. Wire mesh: Welded plain cold drawn steel wire fabric, ASTM A185. 2. Deformed steel bars: ASTM A615, Grade 40. C. Concrete Materials: Comply with requirements of Section 03310 for materials, admixtures, bonding materials, curing materials, and others as required. D. Expansion Joint Materials: Comply with requirements of Section 03250 for preformed expansion joint filers and sealers. E. Anti Spalling Compound: 50% (by volume) boiled linseed oil and 50% (by

F. Liquid_Membrane Forming Curing Compound: Complying with ASTM C 309, Type I, Class A. Moisture loss not more than 0.055 gr./sq. cm. when applied at G. Lane Marking Paint; Chlorinated rubber_alkyd type, AASHTO M 248 (FS TT P 115), Type III, color,white.

2.02 CONCRETE MIX, DESIGN AND TESTING A. Comply with requirements of Section 03310 for concrete mix design, sampling and testing, and quality control, and as herein specified. B. Design mix to product normal weight concrete consisting of portland cement gagregate, air entraining admixture and water to produce the following 1. Compressive Strength: 3000 psi, minimum at 28 days, unless otherwise

3.00 EXECUTION

2. Air Content: 5% to 8%

3.01 SURFACE PREPARATION A. Remove loose material from compacted subbase surface immediately before B. Dampen sub_base with water before placing concrete.

3.02 FORM CONSTRUCTION A. Set forms to required grades and lines, rigidly braced and secured. Install sufficient quantity of forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.

1. Top of forms not more than 1/8" in 10'. 2. Vertical face on longitudinal axis, not more than 1/4" in 10'. C. Clean forms after each use, and coat with form release agent as often as required to ensure separation from concrete without damage

B. Check completed formwork for grade and alignment to following tolerances:

A. Locate, place and support reinforcement as specified in Section 03310, Concrete Work unless otherwise indicated. B. Fabricated Bar Mats: Keep mats clean and free from excessive rust, and handle units to keep them flat and free of distortions. Straighten bends, kinks, or other irregularities or replace units as required before placement. for a minimum 6" overlap to adjacent mats.

3.04 CONCRETE PLACEMENT A. General: Comply with requirements of Division—3 sections for mixing and placing concrete, and as herein specified. B. Place concrete using methods which prevent segregation of mix. Consolidat concrete along face of forms and adjacent to transverse joints with internal ibrator. Keep vibrator away from joint assemblies, reinforcement, or side orms. Use only square_faced shovels for hand-spreading and consolidation

1. Use bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces. . Deposit and spread concrete in a continuous operation between transvers joints, as far as possible. If interrupted for more than 1/2—hour, place a 3. When adjacent pavement lanes are placed in separate pours, do not operate equipment on concrete until pavement has attained sufficient strength to

Consolidate with care to prevent dislocation of reinforcing, dowels, and ioinf

3.05 CURBS AND GUTTERS A. Automatic machine may be used for curb and gutter placement at Contractor's option. Machine placement shall produce curbs and gutters to required cross—section, lines, grades, finish, and jointing as specified for formed

A. General: Construct expansion, control joints and construction joints true—to—line with face perpendicular to surface of concrete. Construct transverse joints at right angles unless otherwise indicated B. Control Joints: Provide control joints, sectioning concrete into areas as shown

on drawings. Construct weakened_plane joints for a depth equal to at least 1/4 concrete thickness, by tooled joints or saw cut joints. . Tooled Joints: Tooling top portion with recommended cutting tool and finishing edges with a jointer. 2. Sawed Joints: Cut joints into hardened concrete as soon as surface will not be torn, abraded, or otherwise damaged by cutting action. C. Construction Joints: Place construction joints at end of placements and at ocations where placement operations are stopped for a period of more than 1/2-hour, except where such placements terminate at expansion joints. D. Expansion Joints: Provide premolded joint filler for expansion joints abutting

concrete curbs, catch basins, manholes, inlets, structures, walks and other fixed objects, unless otherwise indicated. Locate every 20 feet o.c. for walks ınd curbs, and at changes in sidewalk direction or intersections. Extend joint fillers full_width and depth of joint, and not less than 1/2" or more than 1" below finished surface where joint sealer is indicated. If no joint sealer, place top of joint filler flush with finished concrete surface. 2. Protect top edge of joint filler during concrete placement with a metal cap or other temporary material. Remove protection after concrete has been

3.07 CONCRETE FINISHING A. After striking_off and consolidating concrete, smooth surface by screening and floating. Use hand methods only where mechanical floating is not possible. Adjust floating to compact surface and produce uniform texture. B. Work edges of slabs, gutters, back top edge of curb, and formed joints with an edging tool, and round to 1/2" radius. Eliminate tool marks on concrete

C. After completion of floating and troweling when excess moisture or surface sheen has disappeared, complete surface finishing, as follows: 1. Broom finish, by drawing a fine_hair broom across concrete surface, perpendicular to line of traffic. On inclined slab surfaces, provide a coarse, nonslip finish by scoring surface with a stiff_bristled broom, perpendicular to line of traffic.

A. Protect and cure finished concrete paving, complying with applicable requirements of Section 03310. B. Anti-spalling Treatment: Apply compounds to concrete surfaces no sooner than 28 days after placement, to clean, dry concrete free of oil, dirt, and other foreign material. Apply curing and sealing compound at a maximum coverage rate of 300 sq. ft./gallon. Apply anti_spalling compound in two sprayed applications. First application at rate of 40 sq. yds. per gal.; second

3.09 PROTECTION A. Protect concrete from damage until acceptance of work. Exclude traffic from pavement for at least 14 days after placement or until unconfined compression tests indicate specified design strength has been achieved. When construction traffic is permitted, maintain pavement as clean as possible by removing B. Sweep concrete payement and wash free of stains, discolorations, dirt and

application, 60 sq. yds. per gallon. Allow complete drying between applications.

SECTION 321100 - PAVEMENT MARKING

END OF SECTION

other foreign material just prior to final acceptance.

A. Provide pavement marking in the types and arrangements shown on the Drawings, as specified herein, and as needed for a complete and proper B. Related Work: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

A. Comply with pertinent provisions of Section 01340. B. Materials list of items proposed to be provided under this Section along with manufacturer's specifications and other data needed to prove compliance with C. Photographs, scale drawings, or other data acceptable to the Owner's

Construction Representative, showing types of graphics proposed to be used. 1.03 QUALITY ASSURANCE:

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the

1.04 DELIVERY, STORAGE, AND HANDLING: A. Comply with pertinent provisions of Section 01620.

PART 2 - PRODUCTS

1.02 SUBMITTALS:

2.01 PAVEMENT MARKING PAINT: A. Provide paint specifically formulated for use as pavement marking in automobilitraffic areas. See Drawings for details and color locations. Paint color for locations. stripes shall be white. B. Acceptable Products:

1. "Traffic Paint" manufactured by J.E. Bauer Company.

2. "Traffic Paint" manufactured by Tnemec.

3. "Romark Traffic" manufactured by Glidden-Durkee 2.02 OTHER MATERIALS: A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approva of the Owner's Construction Representative.

3.02 APPLICATION:

3.04 CLEANUP:

3.01 SURFACE CONDITIONS: A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

A. Secure the Owner's Construction Representative's approval of graphics design and layout prior to start of application B. Using proper masking, stencils, and application equipment recommended for the purpose by the manufacturer of the approved paint, apply the approved paint in strict accordance with its manufacturer's recommendations.

C. All applications shall consist of no less than 2 coats, more if needed for complete coverage. Allow sufficient drying time between coats, modifying the period as recommended by the material manufacturer to suit weather

3.03 PROTECTION: A. Provide traffic cones, barricades, and other devices needed to protect the paint

A. When paint is thoroughly dry, visually inspect the entire application, and:

1. Touch—up as required to provide clean, straight lines and surfaces 2. Using a permanently opaque paint identical in color to the surface on which the paint was applied block out and eliminate all traces of splashed, tracked, and/or spilled pavement marking paint from the background

END OF SECTION

1.00 GENERAL

SECTION 321314 - SITE CONCRETE

1.01 SUMMARY: A. Provide site concrete where shown on the Drawings, as specified herein, and as needed for a complete and proper installation B. Related Work:

 Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications. 2. Section 03300: Cast-In-Place Concrete. C. Section includes (but is not necessarily limited to) the furnishing and installing of concrete paving, curbs, curbs and gutters and valley gutters as indicated on the drawings and specified herein.

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the fied requirements and the methods needed for proper performance of the

A. Comply with pertinent provisions of Section 01620

2.01 MATERIALS: Cement, aggregate, admixtures, expansion joint filers and curing materials. Conform to Section 03300.

B. Reinforcing bars and mesh. Conform to Section 03250. C. Forms: Steel, wood or other suitable material of size and strength to resist movement during concrete placement 1. Use flexible spring steel forms or laminated boards to form radius bends. 2. Coat forms with a non-staining form release agent. D. Aggregate Base Course: Meet the requirements of the State of California Department of Transportation "Standard Specifications", latest edition, Section 26 for a Class II aggregate base, 1½ inch maximum gradation.

E. Curing Compound: ASTM C309, Burke "Burke-Cure" or approved equal. A. Provide mix designs for each class of concrete used in accordance with Section

B. Mix concrete in accordance with the mixing requirements of Section 03310. 2.03 PROPERTIES AND PROPORTIONS: A. Proportion concrete to provide a minimum compressive strength at 28 days of

B. Slump: Between 3 and 4 inches maximum.

backs formed for the full depth.

expansion joints.

greater than ¼ inch.

C. Aggregate size: Maximum 3/4 inch.

3.01 PREPARATION OF SUBGRADE: A. Scarify each subgrade to a depth of not less than 6 inches and compact it to

3.02 BASE COURSE: A. Spread and compact base course on prepared subgrade in accordance with paragraphs 26-1.04 and 26-1.05 of "Standard Specifications". 3.03 INSTALLATION OF CURBS AND GUTTERS: A. Construct concrete curbs and curbs and gutters as indicated with faces and

1. Before removal of the forms, finish the surface true to grade by means o a straight edge float, not less than 10 feet long, operated longitudinally 2. Construct form clamps so as not to interfere with the operation of this 3. Trowel the face of the curb smooth to a depth of not less than 2 inches below the flow line or to the flow line of integral curb and gutter then finish

with a steel trowel. 4. Finish the top and gutter face and round the front and back edges as 5. Give the curb face a final fine brush finish with brush strokes parallel to the

7. Provide 1" diameter schedule 40 PVC weeps thru curbs at isolated planters 10'-0" o.c. maximum. B. Provide expansion joints at ends of curb returns and at maximum intervals of 40 feet on straight runs. 1. Provide weakened plane joints at maximum intervals of 20 feet betwee

2. Use preformed joint materials and edge with a tool having a radius of no

3. Construct weakened plane joints to a minimum depth of ½ inch by scoring

with a tool which will leave the corners rounded and ensure a free

movement of the concrete at the joint. C. Finish top and face of curbs and curb and gutters true and straight, of uniform width and free from humps, sags and other irregulari 1. When a straight edge 10 feet long is laid on the top or face of the curb or gutter, the surface shall not vary more than ¼ inch from the edge of the straight edge except at grade changes or curves.

2. Float the surface to grade and cross section with a float no less than 10

3. Trowel surfaces to a uniform smooth texture free of trowel marks ready to

3.04 INSTALLATION OF SIDEWALKS AND OTHER FLAT WORK: 1. Strike off and compact the fresh concrete until a layer of mortar has been

6. Give the tops of curbs a smooth trowel finish.

receive final finish as specified below. 1. Tool the surfaces of flat work to provide weakened plane joints in

feet in length and not less than 6 inches in width.

2. Use a scoring tool that will leave the corners rounded 3. Form expansion joints 1/4 inch wide at all returns and opposite expansion

joints in curbs. C. Where curb is not adjacent, form expansion joints at intervals of 40 feet 1. Fill expansion joints with pre-molded expansion joint filler.

2. Tolerances: The surface of flat work shall not vary more than 0.02 foot from a 10 foot straight edge except at grade changes. D. Broom finish: After concrete has been troweled and joints have been formed. use a stiff fiber broom to provide a uniformly straight scored surface at right

accordance with patterns indicated.

1. Curing Compound shall be in accordance with the manufacturer's specifications and recommendations 2. Exterior slabs: Cover and cure with membrane curing compound or moist

sand at contractor's option. Upon completion of job, wash clean END OF SECTION

2138 N Cleveland Massillon R

Akron, Ohio 44333

t 330.659.3161

PROJECT NO .: DRAWN BY: CHECKED BY: SSUED DATE ISSUED REVISIONS: 0 3 S

NO

Q $\overline{}$

SP9

RIBLING

A. Section 0329300 - Plants

1.03 DESIGN CRITERIA A. All piping, valves, etc. shown within paved areas are for design clarification only and shall be installed in planting areas where possible. Avoid any conflicts between the sprinkler system, planting, and architectural features.

B. The Landscape Contractor is responsible for attaching the irrigation system at the point of connection (P.O.C.) Verify size and location of water meter.

1.04 DAMAGE
A. Maintain adequate protection of all work from damage and protect the Owner's A multium adequate protection of all work from admage and protect the Owner's property from injury or loss arising in connection with work on this contract. Avoid damage to any existing buildings, equipment, piping, pipe coverings, electrical systems, sewers, sidewalks, landscaping, grounds, above ground or underground installations or structures of any kind. Damage includes not only mechanical damage but damage from leaks in the irrigation system being installed whether through negligence or otherwise. Provide adequate contents installed, whether through negligence or otherwise. Provide adequate protection of adjacent property as provided by law and provide and maintain all passageways, guard fences, lights and other facilities for protection required by the Public Authority for local conditions. Securely cover all openings into the o prevent obstructions in the pipe and the breakage, misuse, or disfigurement of the equipment.

B. Do not install any equipment in such a way as to endanger the public's safety now or in the future. Open trenches shall be barricaded or covered. Provide and maintain all lights, warning signs, barricades, etc. as may be required or adiacent to structures, fences or walls, or it shall be barricaded in such a way as to prevent tripping over it or running into it inadvertently. All spray heads within 18 inches (18") of walks, curbs or driveways shall be pop_up style with positive spring retraction and retract flush with ground when not operating.

A. Submit under provisions of Section 013300. B. Visit the subject site to verify the various existing conditions. Any condition

found to deviate from the Drawings shall be reported to the Owner's Project Manager prior to submitting bid.
C. Product Data: Provide component and control system, wiring diagrams and manufacturer's installation instruc

1.06 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 017830.

B. Provide the Owner with a clean set of marked reproducibles of Record Drawings referencing all trenches with dimensions to nearest building or paving, and showing all changes and modifications to the Drawings. The record plan shall be completed and submitted to the Owner's Project Manager before final

payment shall be made for work installed. C. Controller Charts 1. Record drawings shall be approved by Owner's Project Manger before

controller charts are prepared.

2. Revise one controller chart for each controller. 5. The chart shall show the area controlled by the automatic controller and shall be the maximum size which the controller door will allow.

4. The chart is to be a reduced drawing of the actual as—built system. However, in the event the controller sequence is not legible when the

drawing is reduced, it shall be enlarged to a size that will be readable when

5. The chart shall be a blackline or blueline.

1.07 OPERATION AND MAINTENANCE DATA Submit under provisions of Section 017835. B. Provide instructions for operation and maintenance of system and controls, seasonal activation and shutdown, and manufacturer's parts catalog.

C. Provide schedule indicating length of time each valve is required to be open to

provide a determined amount of water.

D. It is the intent of the Drawings to indicate a complete sprinkler system, which when installed will adequately and evenly irrigate all landscape areas shown, without further cost to the Owner. The landscape contractor shall examine the site prior to installation to satisfy himself that all areas will be adequately covered by a sprinkler system. Notify the Owner's Project Manager in writing of any discrepancies prior to installation. In the event notification is not made, the landscape contractor shall assume all responsibility for costs, including but not limited to, addition of heads, valves, trenching, etc., as deemed necessary by the Owner's Project Manager or appropriate agency.

1.08 QUALIFICATIONS

A. Manufacturer: As specified under Irrigation Legend on Drawings.

B. Installer: Company specializing in performing the work of this section and providing continuous supervision by a competent foreman capable of interpreting

1.09 REGULATORY REQUIREMENTS

 A. Conform to applicable code for piping and component requirements.
 B. Provide certificate of compliance from authority having jurisdiction indicating. approval of products in system.

C. All subtrades shall apply and pay for all permits required for this portion of

1.10 COORDINATION A. Coordinate the work with site backfilling, landscape grading and delivery of plant

B. Coordinate all piping that is to pass under any pavement not yet installed.
C. Coordinate with Electrical Contractor and Project Engineer for a 115_volt electrical stub_out at each controller location.

A. Furnish extra components under provisions of Section 017700:

. 2 controller kevs

5. 2 wrenches for each type head core and for removing and installing each

1.12 QUALITY ASSURANCE

replacement of failed material.

. 2 quick coupler keys.

A. Approval: The selection of materials and execution of operations required under these Drawings and Specifications are subject to the approval of the Landscape Architect and/or Project Manager.

B. Rejection: The Landscape Architect, with the concurrence of the Owner's Project Manager, will have the right to reject material and work which does not conform to the contract documents at any stage of the operation. All rejected material shall be promptly removed and corrected by the contractor as

C. Sprinkler material is specified. The sprinkler system has been designed according to the operation characteristics of the specified equipment.

Therefore, no substitution will be allowed from the equipment specified or its

D. The Landscape Contractor is cautioned to defend the hydraulics of this system by following the Drawings and Specifications carefully. Particular attention should be given to; operating controllers properly, operating the system after flow controls or section valves have been adjusted to designed operating pressure, and following the manufacturer's recommendations for installation of all items. The sizing of valves and pipes is specific to this design. I modifications are made, all valves and piping must be sized properly to conform with the standard G.P.M. and velocity requirements. Submit calculations and modified layout on overlay sheet for written approval prior to

1.13 GUARANTEE A. The irrigation system shall be unconditionally guaranteed for a period of one years from the date of Store Turnover. Manufacturer warranties shall not eplace this guarantee and Contractor shall be liable for repairs and

2.00 PRODUCTS

A. Polyvinyl chloride pipe, hereinafter referred to as PVC pipe, shall have been manufactured in accordance with the product standard as follows:

1. Product standards PS-22-70 shall apply, and be the governing authority as applicable to mainline piping and shall be PVC Schedule 40 IPS plastic pipe.

2. Product standards PS-22-70 shall apply and be the governing authority, as

applicable to lateral piping and shall be PVC Class 200 IPS plastic pipe.

B. Riser: All risers to have double 90° swing joints. Risers and swing joint nipples shall be unplasticized PVC Schedule 80, threaded pipe. Fittings on swing joints shall be PVC Schedule 40 threaded elbows or street elbows. Fittings: Fittings, in general, for all installations shall be considered incidenta

to the contract price and shall be the Contractor's responsibility to provide all fittings shall be of schedule 40 polyvinyl chloride, injection molded and side gated, and shall be compatible with the PVC pipe furnished.

D. Solvent Cement: ANSI/ASTM D2564 for PVC pipe and fittings.

E. Sleeve Material: PVC Schedule 40 IPS, sleeves shall be two (2) sizes larger

han the pipe going through.

A. Outlets: Cycolac and PVC construction.

B. Spray Type Sprinkler Head: Pop_Up head with pattern as indicated by symbols listed under Irrigation Legend on Drawings.
C. Quick Coupler: As listed under Irrigation Legend on Drawings.

2.03 VALVES A. Automatic control valve as indicated on the Drawings. B. Backflow Preventers: Backflow prevention units shall be model nos. 825Y, as manufactured by Febco or equal, and of the size indicated on the Drawings.

Such devices shall be acceptable to the authority having jurisdiction where the project is located. C. Valve Box and Cover: Precast concrete with plastic cover. Carson Concrete

A. Controller: Automatic controllers shall be as specified on Drawings. Provide all necessary features for programming as shown on the irrigation design plan.

Each controller shall be encased in a sturdy, lockable, weatherproof mounting box and must be easily accessible for maintenance. Minor timing adjustments of the controller shall be possible to be made in the field. There shall be no time lags between sections or stations and the controller will be of a compatible type for operating the automatic control valve. If the timing mechanism of the controller has to be removed from the field for service. the controller shall be capable of continued manual operation. A summary of ontroller instructions shall be provided and posted adjacent to controller See 02810 - 1.06C6.

B. Controller Housing: Controller shall be housed in a weatherproof metal housing with key lock. 1. All electrical wire from automatic controller to control valves shall be

number 14 UF direct burial or heavier gauge as required by length as per manufacturer's specifications. Control wires shall be connected to the control valve solenoids with Scotch Lock #3376 resin connectors or approved equal. All pilot wires will be of one color and all common ground wires to be of another color. Tape and bundle wires every ten feet (10'), tape to main line whenever possible. 2. Wire shall be furnished in minimum 2500' reels and splicing shall be minimized, with such splices made waterproof with the use of waterproof Scotchlock or PenTite kits. All 24 volt wiring shall be done in accordance

with existing codes. 3. All electrical materials and equipment shall be U.L. listed and meet all local codes and regulations. All exposed wire above grade shall be enclosed in

4. An expansion curl shall be provided within three feet of each wire connection. Expansion curl shall be of sufficient length at each splice connection at each electric control, so that in case of repair, the valve connet may be brought to the surface without disconnection of the control wires. Control wires shall be laid loosely in trench without stress or stretched of control wire conductors.

A. Verify site conditions under provisions of Section 01039. Verify location of existing utilities. Exercise extreme care in excavating and working near existing utilities. Contractor shall be responsible for damages t utilities which are caused by his operation of neglect. Check existing utility drawings for existing utility locations. Two working days prior to any digging, contact Underground Service Alert 800/422-4133.

.02 PREPARATION A. Verify design pressure, if different, notify Owner's Project Manager before proceeding with work. Layout and stake locations of system components. Review layout requirements with other affected work. Coordinate locations of

Verify that required utilities are available, in proper location, and ready for use.

sleeves under paving to accommodate system. Spacing of all heads are specific to the areas as shown on the Drawings. Contractor shall verify areas to be irrigated are the same size as shown or plan. If the size of the area has changed in any way, notify Owner's Pr Manager in writing and make all the necessary adjustments in layout and number of heads. Refer to paragraph 1.13 of this section.

A. Remove lumber, rubbish and rocks from trenches. Provide firm, uniform bearing for entire length of each pipe line to prevent uneven settlement. Wedging or blocking of pipe will not be permitted. Remove foreign matter or dirt from inside of pipe before welding, and keep piping clean by approved means during and after laying of pipe.

. Snake all piping in trench. . Minimize trenching where feasible by placing pipes in joint trench, however, allow minimum of two inches (2") between outside diameter of pipes. No pipe shall be placed on top of another in joint trench. Trenches shall be wide

enough to accept side_by_side installation.

D. All piping shall be layed true to grade with changes of direction made with schedule 80 P.V.C. Type 1 fittings. Solvent weld Joints shall be used as per manufacturer's specifications and allowed to set twenty_four (24) hours minimum before water pressure is applied.

E. Initial backfill on plastic lines shall be of a fine granular material with no oreign matter larger than ½ inch in size, with a minimum of four inches (4") over and two inches (2") under piping.

Provide for a minimum of 18" cover for all pressure supply lines.

. Provide for a minimum cover of 12" for all non-pressure lines. H. Provide for a minimum cover of 18" for all control wiring. I. Provide for a minimum cover of 24" for all control wire and supply lines under

paving.
J. Trenching and Backfill Under Paving Trenches located under areas where paving will be installed shall be backfilled with sand (a layer six inches below the pipe and three inches above the pipe) and compacted in layers to 90% compaction, using manual or mechanical tamping devices. Trenches for piping shall be compacted to equal compaction of the existing adjacent undisturbed soil and shall be left in a firm unyielding condition. All trenches shall be left flush with the adjoining grade. The sprinkler irrigation Contractor shall set in place, cap

and pressure test all piping under paving prior to the paving work.

Where any cutting or breaking of sidewalks and/or concrete is necessary, it shall be done and replaced by the Contractor as part of the contract cost. Permission to cut or break sidewalks and/or concrete shall be obtained from the Owner's Project Manger. No hydraulic driving will be permitted under concrete paving except as specifically approved.

Routing of sprinkler irrigation lines as indicated on the drawings is diagrammatic. Install lines and various assemblies in planting areas where possible and to conform with the details shown of the drawings. Install no multiple assemblies on plastic lines. Provide each assemb Install all assemblies specified herein in accordance with respective detail.

In absence of detail drawings or specifications pertaining to specific items required to complete work, perform such work in accordance with best standard practice with prior approval of the Owner's Project Manager.

Description of the Owner's Project Manager.

Description of the Owner's Project Manager. be as recommended by the pipe and fitting manufacturer.

On PVC to metal connections, the Contractor shall work the metal connections first. Teflon tape or approved equal shall be used on all threaded PVC-to-PVC ioints, and on all threaded PVC-to-metal joints.

Light wrench pressure is all that is required. Where threaded PVC connections are required, use threaded PVC adapters into which the pipe L. Install valve boxes 12 inches (12") from and perpendicular to walks, curbs, be an equal distance from the walk, curb, etc., and each box shall be 6 inches (6") apart. Short side of valve box shall be parallel to walks, curbs, etc.

M. The controller locations are approximate. Field verify exact location of controller with Owner's Project Manager prior to installation. 115_Volt electrical supply is provided for immediate vicinities. Use thin wall metal conduit above grade. Use waterproof connections for outdoor installation. Contractor to program controllers for proper hydraulic flows. Install per manufacturer's expecifications. Experience install bettery backup for controllers.

ations. Furnish and install battery backup for controllers. Install separate common wire for each controller.

N. Install control wiring in accordance with Section 16123. Provide 10 inch expansion coil at each valve to which controls are connected, and at 100 ft

intervals. Bury wire beside pip
K. Set all pop_up sprinklers flush with finish grade and one inch (1") horizontally away from edge of walks, curbs, header boards, etc. Spray heads to be supplied in accordance with the specifications. Nozzling shall be in accordance e determined by the area to be covered and by the wind conditions that may

A. Installation of the system main shall be in accordance with the manufacturer's instructions and shall proceed from the point of connection of supply for the system pumping station, reservoir, or existing line. Concrete thrust blocks shall be installed at any directional changes in the pipeline in accordance with pipe manufacturer's instructions. The main shall be flushed and pressure tested for 4 hours prior to making any lateral connections.

3. Lateral pipes and fittings shall be installed in accordance with the manufacturer's recommendations, including the snaking in of P.V.C. pipe to prevent excessive strain when contracting in cold weather.

C. Use only the solvent supplied and recommended by the PVC pipe manufacturer to make solvent_welded Joints. The pipe and fittings shall be thoroughly). Install backflow prevention device in accordance with local code. Verify with City any inspections or pressure tests required.

5 FIELD QUALITY CONTROL A. All excavations covered in this section shall be unclassified and is to include earth, loose rock, rock, or any combination thereof, in wet or dry state. B. All trenches shall be backfilled with the material removed, except where special

special backfill specifications shall take precedence over this general 3. All trench backfill shall be water settled and compacted in order to prevent D. Where the area is not sodded, all trenches and adjoining areas shall be hand

backfill specifications of certain pipe may specify otherwise. In this case, the

raked to leave grade in as good or better condition than before installation. E. Shrubs shall not be moved or damaged, except where it is impossible to make the installation otherwise, then shrubs may be moved, provided ample

precautions are taken to prevent damage to the shrubs.

It is understood that the piping layout is diagrammatic and piping shall be routed around trees and shrubs in such a manner as to avoid damages to

plantings.

G. Install material in strict accordance to the manufacturer's installation specifications, which shall be considered a supplement to these Specifications. H. No water shall drain onto walks, curbs or streets. Install antidrain check

valves under heads where drainage occurs.

Adjust heads to minimize spray on sidewalks, fences, walls and buildings. Absolutely no water shall spray or drain onto stairs or steps. Program controller for multiple start times to prevent runoff.

J. Handling of PVC Pipe and Fittings: The Contractor is cautioned to exercise

care in handling, unloading, and storing of PVC pipe and fittings. All PVC pip shall be transported in a vehicle which allows the length of the pipe to lie fla so as not to subject it to undue bending or concentrated external load at any . Any section of pipe that has been dented or damaged will be discarded and, if installed, shall be replaced with new piping. Testing of Irrigation System

Note: Testing of pressure main lines shall occur prior ro installation of electric control valves.

1. The Contractor shall request the presence of the Owner's Project Manager 2. Test all pressure lines under hydrostatic pressure of 150 lbs./sq. in. and prove watertight. 3. All piping under paved areas shall be tested under hydrostatic pressure of

150 lbs./sq. in. and prove watertight prior to paving.4. Sustain pressure in lines for not less than two hours. If leaks develop, A. Backfill for trenching shall be compacted to a dry density equal to the adjacent undisturbed soil and shall conform to adjacent grades without dips, sunken areas, humps, or other irregularities. Any trenches which settle below surrounding grade shall be brought to existing grade by contractor at

3.07 ADJUSTING A. Upon completion of the installation of the total system, test, set and adjust all component parts of the system to insure that the overall operation of the system is functioning at peak efficiency. This includes the programming and adjustments of all pumps, controllers, sprinkler heads, pressure regulators

.08 DEMONSTRATION A. Instruct Owner's personnel in operation and maintenance of system, including adjusting of sprinkler heads. Use operation and maintenance material as basis for demonstration. Provide watering schedule of time required for each zone. B. Provide As Built drawings indicating locations of heads, controllers, and valve

SECTION 329300 - PLANTS

1.00 GENERAL Division 1 requirements apply to this Section.

END OF SECTION

A. Section includes: Landscaping work. 1.02 QUALITY ASSURANCE

A. Securely attach durable, legible labels, using weather resistant ink, stating the plant name and size. Each plant, bundle, and container of plant materials lelivered to the site shall have such a label. B. The Owner's Project Manager may review, all plant materials before planting,

and accept or reject same. Plant materials found to be unacceptable shall be

1.03 DELIVERY, STORAGE, AND HANDLING A. Upon delivery to the site, plant all nursery stock as soon as possible. Do not expose plant materials to excessive sun or drying winds while in storage before planting.

B. All balled burlapped stock, not planted within 4 hours after delivery to the site shall be "Heeled in" and properly maintained, until planted.

C. Materials shall be properly protected, maintained, and watered, until planted.

A. Planting: Perform actual planting only when weather and soil conditions are suitable in accordance with locally accepted practice. A. All plant materials shall be guaranteed for the following periods after completion and acceptance of the Work by the Owner. Replacement plants shall be guaranteed for 1 year.

1. Shrubs 90 days
2. Trees 1 year
3. Plants from flats 90 days B. All permanent grass lawn areas shall be guaranteed to provide a continued growth of an even, dense lawn for a period of 90 days from the date of acceptance by the Owner. The written guarantee shall include reseeding of all gregs required to insure a uniform dense lawn within the guarantee perio

2.00 PRODUCTS

2.01 PLANT MATERIALS A. The species (scientific and common names) sizes, manner in which shall be furnished, and the approximate number required, are given in the plant list. B. Plant quantities on the list are indicated only for convenience. Furnish all landscape plan. Surplus or shortages based on the plant list shall not be considered for additional costs to the Owner.

. The following organic and soil amendments and fertilizer are to be used for bid-price basis only. Specific amendments and fertilizer specification will be

made after grading operations are complete and samples tested by Landscape Contractor.

All materials shall be of standard, approved and first grade quality and shall be in prime condition when installed and accepted. Any commercially processed or packaged material shall be delivered to the site in the original unopened container bearing the manufacturer's guaranteed analysis. upplied materials accompanied by analytical data from an approved aboratory source illustrating compliance or bearing the manufacturer's guaranteed analysis.

B. Organic Amendment I. Nitrogen Stabilized: 0.56 to 0.84% N based on dry weight for redwood sawdust.
2. Particle Size:

 a. 95% - 100% passing 6.35 mm standard sieve.
 b. 80% - 100% passing 2.33 mm standard sieve. Salinity: The saturation extract conductivity shall not exceed 3.5 millimhos/centimeter at 25 C as determined by saturation extract method. 4. Iron Content: Minimum 0.08% dilute acid soluble Feron dry—weight basis. 5. Ash: 0-6.0% (dry weight) . Soil Sulfur: Agricultural—grade sulfur containing a minimum of 99% sulfur

Soil Sulfur: Agricultural—grade sulfur containing a minimum of 99% sulfur (expressed as elemental).
 Iron Sulfate: 20% iron (expressed as metallic iron), derived from ferric and ferrous sulfate, 10% sulfur (expressed as elemental).
 Calcium Carbonate: 95% lime as derived from oyster shells.
 Gypsum: Agricultural—grade product containing 98% minimum calcium sulfate.
 Dolomite Lime: Agricultural—grade mineral soil conditioner containing 35% minimum magnesium carbonate and 49% minimum calcium carbonate, 100% passing #65 sieve Kaiser Dolomite 65 AG or approved equal.
 Calcium Nitrate: Agricultural—grade containing 15.5% nitrogen.

I. Planting fertilizer shall be Gro—Power Plus (bacteria included) with soil penetrant and shall consist of the following percents by weight: 5% nitrogen 3% phosphoric acid 1% potash 50% humus

2. Gro-Power Pot Fertilizer shall be Gro-Power controlled-release fertilizer and soil conditioner in the following percents by weight: nitrogen phosphoric acid potash humus 5% humic acid 3. Top-Dress Fertilizer shall be Gro-Power Plus (bacteria included) with soil present, and shall consist of the following percents by weight:

32% phosphoric acid 1% potash 15% humic acid a. To be slow release type, containing the following percentages of nutrients

by weight:
20% nitrogen
10% phosphoric acid b. To be 21-gram tablets as manufactured by Agriform or approved

equal, applied per manufacturer's instructions.

E. Import Soil Imported soil, when required, shall be obtained from source approved by Owner's Project Manager.

2.03 CHEMICALS

2.04 ACCESSORIES A. Guying wires shall be soft steel, galvanized, 12 gauge, sheathed in rubber of B. Curbs and dividers shall be CRA Redwood, RIS, Kiln Dried, Construction heart 3. Sleeves shall be minimum 2", schedule 40 PVC plastic pipe.

3. Provide precast splash blocks or other provisions as indicated to prevent soi erosion of finished landscaped planters and lawn areas adjacent to the structure under downspouts and roof drain leader.

A. Decomposed granite shall be free from lumps and balls of clay and shall not contain calcareous coatings, caliche, organic matter or deleterious substances.

B. Color and source of decomposed granite shall be approved by the Owner's Project Manager. All material shall be from a single production source and shall present a uniform appearance. C. Material containing clumps which will not disintegrate with a shovel blow shall

D. Decomposed granite shall be graded as follows: SIEVE SIZE PERCENT PASSING

2.06 SEED, LAWN A. Lawn seed shall be as specified on the drawings, certified with a minimum purity of 95% and a minimum germination of 85%. All seed shall be from tested lots and shall be delivered to the Project in standard containers labeled as required by the United States Department of Agriculture regulations B. Label shall show the variety of strain of seed, degree of purity (%), rate of germination (%), weed contents (%), and date of test.

3.01 PREPARATION A. Provide and coordinate the installation of all required sleeves under pavement areas and sidewalks.

B. After approximate finish grades have been established, soil_shall be conditioned and fertilized by means of mechanical tiller into the top 8" of soil. The following organic soil amendments and fertilizer rates and quantities are to be used for bid basis only. Specific planting specifications will be made after rough grading for bid operations are completed and soil samples are

ested by Landscape Contractor. a. Nitrogen-stabilized organic amendment: 6 cu. yds. per 1,000 sq. ft. b. Ammonium phosphate 6/20/20: 15 lbs. per 1,000 sq. ft. . 100 lbs. Agricultural gypsum per 1,000 sq. ft.

2. All soil areas shall be compacted and settled by application of heavy irrigation to a minimum depth of 12 inches.

At time of planting, the top two inches of all areas to be planted or seeded shall be free of Bermuda Grass, stones, stumps, or other deleterious matter 1" in diameter or larger, and shall be free from all wire, plaster, or similar objects that would be a hindrance to planting or maintenance.
Final Grades

1. After the foregoing specified deep watering, minor modifications to grade may be required to establish the final grade. These areas shall not be worked until the moisture content has been reduced to a point where working it will not destroy soil structure. 2. Finish grading shall insure proper drainage of the site.
3. All areas shall be graded so that the final grades will be 1" below adjacent

paved areas, sidewalks, valve boxes, headers, cleanouts, drains, manholes, etc., in turf areas, ½" below in ground cover areas. Eliminate all erosion scars.
 Disposal of Excess Soil — Dispose of unacceptable or unused excess soil.

3.03 STAKING OF TREES A. Support trees by four 2" x 2" posts with a top tie placed for maximum support and a tie placed midway between top and ground. Provide additional ties as directed by the Owner's Project Manager. Where evidence can be provided to indicate that trees have been grown without stakes, said trees 3.04 DECOMPOSED GRANITE

A. Furnish and place the decomposed granite in accordance with the details shown and the requirements of these Specifications. B. Before placing granite, the area shall be totally free of weeds by applying pre_emergence control in accordance with the manufacturer's recommendation. <u>Place and spread the decomposed granite</u>, Evenly distribute the granite and level, providing a minimum depth of 3° in all areas. D. After placing and grading, lightly water granite to remove fine materials from the surface and water settle or roll to provide a satisfactory condition.

A. Remove promptly all soil, mulch and other materials remaining on sidewalks and drive areas, keeping areas clean at all times.

B. Upon completion of planting operations, remove all excess soil, stones, and debris from the site and dispose of off_site, leaving site clean. C. Provide final cleaning of site with water hose, washing entire site of debris, including all paved areas and walking surfaces.

A. Stake or mark with line locations for plants and outline of planting beds on

ground. Do not begin excavation until plant locations and plant beds are acceptable to Owner's Project Manager. The irrigation system shall be

Apply a second application of pro-emergence control to all areas in accordance with the manufacturer's recommendations.

operational and approved prior to planting. B. Excavation for Planting b. Plant pits to be circular for canned material. Size: All shrubs shall have planting pits dug twice the diameter and twice the depth of the root ball. Backfill around the rootball with prepared

3. Protect all areas from excessive compaction when trucking plants or other

material to the planting site. Can Removal:
 a. Cut cans on two sides with an acceptable can cutter. b. Do not injure root ball. . Do not cut cans with spade or ax. d. Carefully remove plants without injury or damage to root ball.
e. After removing plant, superficially cut edge roots with knife on three

sides. 5. Center plant in pit or trench. 6. Face plant with fullest growth into prevailing wind.
7. Set plant plumb and hold rigidly in position until soil has been tamped firmly around root ball or roots.

8. Container plants shall be backfilled with: 6 parts by volume on-site soil. 4 parts by volume organic amendment

18 lbs. Gro-Power Plus per cubic yard of mix. 1 lb. Ron sulfate per cubic yard of mix.
9. All plants which settle deeper than specified above shall be raised to the correct level. After the plant has been placed, additional backfill shall be added to the hole to cover approximately one half the height of the root ball. At this stage, water shall be added to the top of the partly filled hole O. The preceding is for bid basis only ands specific backfill specifications will be made after rough grading operations are complete and soil samples are 11. After the water has completely drained, planting tablets shall be placed as

indicated below: Five tablets per 15 gallon container Three tablets per 5 gallon container One tablet per 4" box size 2. The remainder of the hole shall be backfilled.

<u>Planting tablets shall be set with each plant on top of the root ball while</u> be used in each hole can be easily verified.

After backfilling: An earthen basin shall be constructed around each plant.

Each basin shall be of a depth sufficient to hold at least two inches of water. Basins shall be of a size suitable for the individual plant. In no case shall the basin for a five gallon plant be less than three feet in dispersion shall be constructed of amended hockfill materials. diameter. The basins shall be constructed of amended backfill material 15. Pruning: Pruning shall be limited to the minimum necessary to removed

injured twigs and branches and to compensate for loss of roots during transplanting, but never to exceed one third of the branching structure Upon approval of the Owner's Project Manager, pruning may be done before elivery of plant, but not before plants have been inspected and approved. C. Planting of Ground Covers Planting of Ground Covers

1. Ground cover plants shall be grown in flats, peat pots, or taken in cuttings, as indicated on the plans. Flat grown plants (rooted cuttings) shall remain in those flats until transplanting. The flat's soil shall contain sufficient moisture so that it will not fall apart when lifting the plants. If plants from

peat pots are used, the pots shall be protected at all times prior to planting to prevent unnecessary drying of the root ball.

2. Ground cover shall be planted in straight rows and evenly spaced, unless otherwise noted, and at intervals called out on the drawings. Triangular spacing shall be used unless otherwise noted in drawings.

3. Each rooted plant shall be planted with its proportionate amount of flat soi or in a peat pot, in a manner that will insure minimum disturbance of th root system, but in no case shall this depth be less than two nodes. avoid drying out, plantings shall be immediately sprinkled after planting until the entire area is soaked to the full depth of each hole, unless otherwise

noted on the drawings.
4. Care shall be exercised at all times to protect the plants after planting. Any damage to plants by trampling or other operations of the contract shall be repaired immediately at no additional cost to the Owner. D. Weed Control: After soil preparation and establishment of final grades prior to any planting, the Contractor shall irrigate thoroughly for two to three weeks, or until the weed seeds have germinated. When there is sufficient weed seed germination, the Contractor shall apply a post—emergent contact weed killer according to the directions of the manufacturer. The Contractor shall then wait an additional two weeks to allow the weed killer to dissipate, then plant indicated in the plans and specifications. Contractor shall remove any

A. Before final acceptance, remove all plant materials, which are dead, not true to name, and otherwise unacceptable from the site and replace with healthy plants as specified.

B. Repair or replace all damaged pavement areas, curbs, irrigation, and other structures upon completion of Work under this Section. All repair work and replacement work shall match adjacent work in all respects.

C. Maintain all plant materials until final acceptance of the project by the Owner.

D. Final acceptance of Work under this Section will be made, by the Owner, after

Landscape Contractor to provide bid for 1—year maintenance of all plants and trees included with initial bid to the General Contractor. END OF SECTION

DIVISION 33 UTILITIES

SECTION 334100 - STORM UTILTY DRAINAGE PIPING

C. Verification of existing drainage structures and inverts, etc.

1.00 GENERAL Division 1 requirements apply to this Section

A. Section includes: Provide all underground storm drainage work. B. Provide all items, articles, materials, operations, engineering or methods listed, mentioned or scheduled on the drawings and as herein specified including all incidentals necessary and required for completion of work under this section.

D. Installation of all drainage related curb inlets, catch basins, junction boxes, manholes, clean_outs, etc. E. Installation of all drain lines from a point 6" outside the face of the building to the point of connection to the off_site drainage system. F. Cutting and patching of paving, curbs, landscaping, etc. G. Backfill and compaction of backfill.

H. Cleanup and restoration of surface in improved areas. I. Record as_built survey of storm system. J. All cutting and patching required for this work is included as a part of this section. Coordinate the work with the General Contractor and the work of

A. Comply with pertinent provisions of Section 01340. B. Materials list of items proposed to be provided under this Section along with

the specified requirements. C. Manufacturer's recommended installation procedures which, when approved by the Owner's Construction Representative, will become the basis for accepting or rejecting actual installation procedures used on the Work.

A. Use adequate numbers of skill workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section. B. All work shall be done in compliance with the Geotechnical Engineers' recommendations and the governing Agency Standards and Specifications. these Specifications conflict with the governing Agency Standards and Specifications, the most stringent shall prevail.

1.04 DELIVERY, STORAGE, AND HANDLING: A. Comply with pertinent provisions of Section 01620.

1.03 QUALITY ASSURANCE:

2.01 REINFORCED CONCRETE PIPE

A. Concrete pipe shall be reinforced and shall meet ASTM C_76 Class III, unless B. Fittings, wyes, reducers, clean_outs, etc. shall be same class as pipe.

B. To be used in all locations where roof drains or their laterals pass through or

C. Connections to be heavy plastic couplings, except at catch basins or similar drainage structures, where a grouted connection may be used. 2.02 DUCTILE IRON PIPE A. Use standard weight ductile iron soil pipe.

under building slabs or footings, or where top of pipe to finish grade is less than 12", or where noted on Drawings. A. PVC (Polyvinyl chloride) gravity sewer pipe shall meet the requirements of ASTM D3034 for SDR 35. The bell section of the pipe shall consist of an integral wall section with a solid cross section rubber ring, conforming to ASTM F477,

2.04 CATCH BASINS

A. Precast concrete catch basins, manholes, area drains and adjusting extension rings, either square or round, as manufactured by Christy Concrete Products, Santa Rosa Cast Products or equal.

factory assembled and securely locked in place to prevent displacement during

assembly. Pipe length shall not exceed twelve and one_half feet. PVC pipe

B. Unless size is noted on drawings minimum width or diameter shall be 18" for depths (measured from grate to invert) less than 24", 24" for depth of 24"+ to 6'0", 36" for depths of 6'0"+ to 9'0", and 48" for depths greater than 9'0". In no case shall the width or diameter be less than 6" larger than the largest pipe entering the catch basin, manhole, steps or rungs when the depth exceeds 6'0" unless specifically noted otherwise on the Drawings.

C. All catch basins to have heavy duty cast iron traffic grates. As manufactured by Phoenix Iron Works or equal. All junction boxes to have solid covers. D. Area drains (which occur in landscaped areas only) to have standard weight traffic grates, as manufactured by Phoenix Iron Works or equal. Area drains not used at manholes for parking lot storm drains may be 12" in diameter.

E. Grate size to match catch basin size except maximum grate size shall be 2'0" 2'0" or 2'0" in diameter, using reducing slabs or tapered cones for catch

2.05 DRAINAGE STRUCTURES

rungs are acceptable.

A. General: 1. Construct manholes, inlets and junction structures of reinforced concrete or precast reinforced concrete, complete with metal frames and covers of gratings, and with fixed ladder rungs where indicated on the Drawings or 2. Individual wall-mounted aluminum, plastic-covered steel, or galvanized steel

B. Materials: 1. Concrete: Comply with provisions for 3000 psi concrete specified in Section 2. Mortar for pipe joints and connections to other drainage structures and manhole construction

a. Comply with requirements of ASTM C270, type M, except the maximum

placement time shall be 1 hour. b. Hydrated lime complying with ASTM C141, type B, may be added to the mixture of sand and cement in an amount equal to 25% of the volume c. Provide a quantity of water in the mixture sufficient to produce a stiff workable mortar, which shall be clean and free from harmful acids, alkalis

and organic impurities. Use the mortar within 30 minutes after water is 3. Precast reinforced concrete manholes a. Comply with ASTM C478, precast rings and cone sections.

b. Fully bed the joints between precast concrete risers and tops in mortar, and smooth both interior and exterior surfaces uniformly. 4. Reinforcement: Provide intermediate grade billet steel complying with ASTM A615, grade 40. 5. Frames and covers or gratings: a. Provide all gratings or covers from the same manufacturer.

b. Provide standard black finish, supplied as a total unit, sized as shown on the Drawings or larger sizes except where in a pavement area, and with the wording "STORM DRAIN" cast into the cover. 6. Precast Concrete Catch Basins:

a. Contractor may select this option in lieu of cast-in-place concrete catch C. Acceptable products: Santa Rosa Cast Products or approved equal.

3.01 SURFACE CONDITIONS A. Examine the area and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 EXCAVATING, TRENCHING AND BEDDING: A. Excavate, trench and bed for site drains in accordance with pertinent provisions of Section 02220 — Trenching, Backfilling and Compacting and the following. B. Movement of Construction Machinery: 1. Use means necessary to avoid displacement of, and injury to, pipe and

structures while compacting by rolling or operating equipment parallel to the 2. Movement of construction machinery over a culvert or storm drain at any stage of construction is solely at the Contractor's risk. C. Bedding:

 Provide a bedding surface for the pipe with a firm foundation of uniform density throughout the entire length of the pipe. 2. Bed the pipe carefully in a bedding accurately shaped and rounded to conform to the lower 1/4 of the outside perimeter of circular pipe, or set the pipe in a bed of sand. 3. Tamp bedding where necessary.

Provide bell holes and depressions for pipe joints of only the length, depth and width required for making the particular pipe joint properly.

Where plastic pipe is used, provide a minimum of 4" of sand bedding under and over the top of the pipe. 3.03 INSTALLING PIPE:

3.04 JOINTS:

A. Jointing Concrete Pipe:

1. Use the specified mortar ingredients.

A. General: 1. Carefully examine each pipe prior to placing. a. Set aside defective pipe and damaged pipe

b. Clearly identify defects.

c. Do not install defective pipe or damage pipe. 2. Place pipe to the grade and alignment indicated, with a tolerance of 1 in 1000 vertical and 1 in 500 horizontal, unless otherwise directed by the Owner's Construction Representative. 3. Provide adequate facilities for lowering pipe safely into the trenches.

B. Concrete Pipe: Place by proceeding upgrade with the spigot ends of bell and spigot pipe, and the tongue ends of tongue and groove pipe, pointing in the direction of flow.

2. Use the mortar within 60 minutes from the time water is first added to the

4. Do not place pipe in water, nor place pipe when trench or weather is

3. Wipe the inside of the joint clean and smooth. Perform wiping by dragging a suitable swab or long handled brush through the pipe as installation

4. Protect the mortar bead on the outside from air and sun with suitable

covering until cured.

Unless otherwise directed by the Owner's Construction Representative, use of the following methods of jointing for bell and spigot and tongue and

a. Cement Mortar Bell and Spigot Joint: (1) Bed the first pipe to the established gradeline, with the bell end (2)Clean surface of bell with wet brush, and fill lower portion with mortal

to such depth as to bring the inner surfaces of the abutting pipes (3)Clean the spiaot end of each subsequent pipe with a wet brush, and uniformly match the bell so that the sections are closely fitted. (4)After laying each section, fill remainder of joint with mortar, and form a bead around the outside of the joint with mortar. (5)Use the specified mortar. If mortar can clump before setting, wrap or bandage the outside of the joint with cheesecloth to retain mortal

b. Flexible Watertight Joint: (1) Use the specified materials. Equal materials may be used when specifically approved in advance by the Owner's Construction Representative. (2)Install gaskets and joint materials in accordance with manufacturer's

recommendations as approved by the Owner's Construction Representative.

in place.

3.07 CLEANUP

(3)Protect from sun, blowing dust and other deleterious agents at all (4) Align the pipe with previously installed pipe, and pull the joint together. If, while making the joint, the gasket or jointing material becomes loose and can be seen through exterior joint recess when joint is pulled to within 1" of closure, remove pipe and remake the

6. Polyvinyl Chloride (PVC) Pipe Joints: Install with the specified materials and in accordance with the manufacturers' recommendations as approved by the Owner's Construction Representative.

(5)Inspect gaskets, and replace loose and improperly affixed gaskets and

3.05 DRAINAGE STRUCTURES: A. Install drainage structures in accordance with the Drawings and according to the manufacturers' recommendations as approved by the Owner's Construction

3.06 BACKFILLING: A. Backfill and compact in accordance with pertinent provisions of Section 02220.

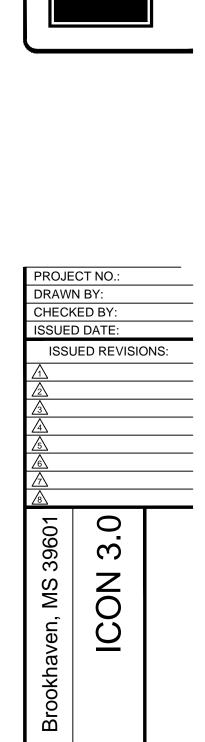
A. After completion of the work, remove all excess earth, rubbish and equipment B. Before final acceptance, flush the entire storm drainage system clean to assure proper drainage without obstruction.

END OF SECTION



Akron. Ohio 44333 **• 330 659 3161**





 $\overline{}$