Study is available for the Contractor's use.

#### 2. SUBSURFACE INFORMATION

2.1 Log of borings indicates materials penetrated at specific locations. Owner and/or Architect assume no responsibility for any conclusions or interpretations made by Contractor related to information included in the Study. Should Contractor require additional information concerning subsurface conditions, he may without cost to Owner, make additional investigations. Should additional investigations produce information different from that in Soil Report, notify Owner in writing.

#### REQUIREMENT

3.1 Contractor read and otherwise become completely familiar with contents of Soil Report, including but not limited to its recommendations for preparation of subsoil, bases, sub-bases and fill and construction of building foundations and parking surfaces. Provide building foundations and parking surfaces in compliance with recommendations in Report. Should discrepancy be found between the requirements of Soil Report and the drawings and/or specifications, notify Owner in writing prior to beginning Work.

### END OF SECTION

\* Refer to Project Manual for Soils Report

DIVISION 2 - SITE WORK

SECTION 02100 - SITE PREPARATION

# 1.1 SCOPE OF WORK

1.1.1 Furnish all labor, materials, services, equipment and appliances required for site preparation work Indicated on the drawings and specified herein.

PART I - GENERAL

#### 1.2 WORK INCLUDED BUT NOT INCLUSIVE

1.2.1 Location and protection of reference points

#### .2 Site clearing .3 Tree removal

1.3 RELATED WORK SPECIFIED ELSEWHERE

### 1.3.1 Site grading

.3 Trenching

.2 Excavation for structures

2.1 NOT APPLICABLE PART III - EXECUTION

### 3.1 GENERAL

3.1.1 Remove all trees, grass, weeds, roots, and other vegetation from the area to be excavated, filled or graded. Consult the Owner prior to beginning removal of trees. Notify utility companies when working in areas where utility lines might be

PART II - PRODUCTS

## 3.2 REFERENCE POINTS

3.2.1 Locate bench marks, monuments and other reference points for elevation and location of building. Notify Owner of apparent discrepancies in indicated locations. Protect reference points from dislocation or damage. Replace or repair immediately any points damaged, destroyed or dislocated. Do not proceed with construction work until reference points have been reviewed and accepted by the Owner.

### 3.3.1 Stripping Topsoil:

3.3.1.1 Remove brush, roots, loose grass, rocks and weeds before stripping.

.2 Remove topsoil to a maximum depth of 6 inches in all areas indicated on the drowings as buildings, drives, parking, walks and other paving.

.3 Store topsoil approved for fill in planting areas in neat piles at designated locations on site. Arrange storage to avoid interference with building operations. No debris, stones larger than 2 inches, or an excessive amount of subsoil shall be allowed in stored topsoil.

## .4 Remove excess topsoil from site.

## .2 Grubbing:

3.3.2.1 Remove all existing sidewalks, alley, foundations, trosh, stumps, old lumber, structures, etc. located either above, on the surface, or below the ground which may interfere with the new

.2 Remove obstructions within work area to a depth of 6 inches in areas to be covered by building and to a depth of 24 inches in areas to be planted, sodded or surfaced, unless shown otherwise on the drawings.

.3 Remove curbs, gutters, drive approaches

#### and paving, as required, located within and outside the property line.

# 3.4 TREE REMOVAL

3.4.1 Remove all trees and stumps from area to be occupied by new buildings and where indicated on the drawings. Do not remove trees chosen to remain by the Owner. Use methods of removal which will prevent injury to persons, damage to property, or injury to adjacent natural growth.

## 3.5 CLEAN-UP

3.5.1 Upon completion of work of this section, remove elated debris from premises.

## END OF SECTION

DIVISION 2 - SITEWORK

1.1 SCOPE OF WORK

### SECTION 02200 - EARTHWORK

#### PART I - GENERAL

1.1.1 Furnish all labor, materials, services, equipment and appliances required for grading, excavating, backfilling and compacting work indicated on the drawings and specified herein.

### 1.2 WORK INCLUDED, BUT NOT INCLUSIVE

- 1.2.1 Cutting, rough grading and backfilling
- .2 Excavation for building construction
- .3 Excavation for trenches
- .4 Dewatering excavations

#### .5 Finish grading and topsoil .6 Inspection and testing

#### 1.3 REFERENCE STANDARDS

1.3.1 American Society for Testina Materials (ASTM): ASTM D698, latest editions, "Moisture Density Relationship of Soils," for determination of optimum moisture content and maximum density of both on-site fill material and borrowed fill material. Test methods described in latest revision at time of bidding, including those referenced herein and those referenced on the drawings.

#### PART II - PRODUCTS

#### 2.1 MATERIALS FOR FILLING AND BACKFILLING

#### 2.1.1 General Site:

Onsite clay soils compacted to a dry density of at least 95% of standard Proctor (ASTM D698) maximum laboratory dry density (100% minimum in the upper 12" of pavement subgrade) between 2% and 4% above optimum moisture content as determined by test methods described in ASTM D-698, Latest Edition, "Moisture Desity Relationship of Soils." excavated material is unsuitable for compaction. as determined by the soils testing loboratory, furnish suitable borrow, which can be compacted, from an off—site source. All fill and backfill materials shall be of low expansivity, uniform in grade, free from organic materials, acceptable to the Owner for use prior to commencement of fill and backfill operations. Tests to be made and off-site borrow furnished, where required, shall be without additional cost to the Owner.

#### 2.1.2 Building Embankment:

Fill and backfill materials for use on the construction of the embankment under the building shall be as described on the structural drawings. including optimum moisture content, compaction requirements, etc.

### 2.1.3 Trenches:

Material, selected from trench excavation or obtained from other sources, which is free from stones of such size as to interfere with compaction and is free from large lumps or other foreign matte which will not readily break down under compaction. The Owner shall have the right to reject any material containing more than 20 percent by weight of material retained on a 3 inch sieve, or material excavated in such manner as to produce large lumps not easily broken down or which cannot be spread in loose layers.

## 2.2 TOPSOIL

2.2.1 Fertile, friable, natural surface soil capable of producing satisfactory agricultural crops, free of raots, rocks, gravel and other debris.

## PART III - EXECUTION

## 3.1 SITE GRADING

3.1.1 Cut or fill and machine grade site as shown on the drawings, to drain as indicated, allowing for the thickness of paving sub-base and the paving. Where fill is required, use laboratory approved suitable excavated clean material, product of cut operation and/or furnish approved borrow (such as a clayey sand or sandy clay) having a liquid limit (LL) less than 30 and plasticity index (PI) not less than 4 nor greater than 15 with no particles greater than 3 inches. The select fill should contain no deleterious meterial and should be compacted to a dry density of at least 95% of Standard Proctor (ASTM D698) maximum laboratory dry density between 2% and 4% above optimum moisture content.

## 3.2 BUILDING EMBANKMENT

3.2.1 Machine cutting, filling and embankment construction shall be performed as indicated on the structural drawings. Perform testing operation specified in PART I above.

## 3.3 EXCAVATION FOR TRENCHES

## 3.3.1 General:

Trenches shall be of necessary width for proper laying of pipe and conduit, with banks as nearly vertical as possible. Bottom of trench shall be shaped and graded to provide uniform bearing and support of each section of pipe on undisturbed soil at every point along its length, except at ends of sections where it is necessary to excavate for proper sealing of pipe joints. Where unsuitable material is removed in pipe trenches, compacted sand bed for pipe shall be constructed and shaped to receive pipe at required or specified grade, invert elevation or depth of cover. Refer to mechanical and electrical, civil drawings and all related specifications for pipe sizes, invert elevations, grades and required cover for underground piping, conduit, manholes and related items.

#### 3.3.2 Protection:

Provide sheeting, shoring and bracing per OSHA requirements for all trenching work and drainage structure excavation to prevent caving or to protect personnel, without additional cost to Owner.

#### 3.3.3 Dewatering:

If a water condition is present, provide dewatering without additional cost to the Owner, including sumps, pumps and pumping as may be required or directed to ensure pipe laying and jointing in the dry. Maintain dewatering until backfilling of trenches is ordered after all required piping inspections are completed.

#### 3.4 BACKFILLING TRENCHES

### 3.4.1 General:

After pipe has been installed as required by the pertinent specifications, place backfill material along both sides of the pipe equally, in uniform layers not exceeding 6 inches in depth (loose measurement). Wet material, if required, and thoroughly compact on each side of the pipe,

#### Continue backfilling in this manner to the elevation of the top of the pipe. Special care shall be taken to secure thorough compaction of the materials under the haunches of the pipe. Compact all backfill below the top of the pipe mechanically in the manner prescribed above.

#### .2 Paved Areas:

Where a permanent pavement is to be placed, the backfill above the top of the pipe shall be compacted mechanically to the requirement of Sections 3.1 and 3.2.

#### .3 Protection:

During construction adequate cover measures must be provided to protect all pipe from damage.

### 3.5 PROTECTION OF TREES TO REMAIN

3.5.1 Excavation Around Trees:

Hand excavate around trees when finish grade will be lowered. Avoid damage to trunk or roots that will remain. Cut roots that must be removed at least four inches below grade and paint with tree paint.

#### .2 Filling Around Trees:

Fill around trees, when finished grade will be raised, with collar of clean gravel from one inch to two inches in diameter. Make width of collar a minimum of 24 inches. Finish at trunk, three inches above adjacent finished grade, with no earth fill in contact with trunk.

#### 3.6 FINISH ORADING AND TOPSOIL

3.6.1 Establish all grades by means of grade stakes placed at corners of units at all abrupt changes of grade and elsewhere as required. Provide a six inch layer of topsoil in all areas noted "planting" and in other areas where existing topsoil has been disturbed or otherwise made unusable. Fill all such areas to finish elevations 3 inches below top of curb and/or finish grades shown on the drawings. Owner will add 3 inches of additional fill, under separate contract, to bring finished planting areas up to finish grades shown on the drawings."

3.7.1 The Contractor shall employ and pay for, as part of the Contract price, the services of the Owner's soils testing laboratory to test fill and backfill materials and their degree of compaction in place, and the optimum moisture content of both on-site and proposed borrow prior to placing and compacting. Not less than one compaction test for each 3,000 sq. ft. of surface for each lift of fill shall be performed on compacted fill under the building, and not less than one compaction test for each 5.000 sq. ft. of surface for each lift of fill shall be performed on compacted fill or undisturbed earth to remain on areas of the site to be covered by paving, walks or traffic approaches. Copies of test reports shall be furnished to the Owner for acceptance.

## 3.8 CLEAN-UP

3.8.1 Upon completion of work of this section remove related debris from premises.

## END OF SECTION

DIVISION 2 - SITE WORK

## SECTION 02285 - TERMITE CONTROL

PART I - GENERAL

# 1.1 SCOPE OF WORK

1.1.1 Furnish all labor, materials, services, equipment and appliances required for soil-poisoning treatment of earth specified herein.

## 1.2 INTENT

1.2.1 To guard against termites and other common ground insects detrimental to wood construction. Poisons mentioned in PART II of this specification are suggested for use but shall not be used if disallowed by governing laws and/or ordinances.

## 1.3 GUARANTEE

1.3.1 The treatment specified in this section shall be performed by a reputable exterminating company and shall be guaranteed in writing for a period of 5 years, subject to annual renewal thereafter.

## PART II - PRODUCTS

## 2.1 POISON

2.1.1 Dursban TC, Dow Chemical — apply per manufacturer's

#### PART III EXECUTION

#### 3.1 APPLICATION

3.1.1 Safety:

Soil-poisoning treatment shall be accomplished in accordance with all recommended safety precautions for the materials used.

#### 3.1.2 Quantities and Rates:

Apply soil—poisoning treatment at the minimum rate of 1-1/2 gallons per 10 square feet as overall treatment under the slab, prior to placing of vapor barrier. Along the exterior perimeter of the grade beam and under all slab joints, apply at the rate of two (2) gallons per five (5) linear feet in a strip one foot wide in shallow trench. In critical areas such as around utility openings for pipes, conduits or other slab penetrations, apply at the rate of 0.5 gallons per square foot. The quantities described in this paragraph are minimums and shall be adjusted as deemed necessary by the treatment agency to provide the required protection.

### 3.2 CLEAN-UP

3.2.1 Upon completion of work of this section, remove related debris from premises

# END OF SECTION

### DIVISION 2 - SITE WORK

SECTION 02505 - CONCRETE PAVING, WALKS, CURBS, **GUTTERS AND APPROACHES** 

#### PART I - GENERAL 1.1 SCOPE OF WORK

1.1.1 Furnish all labor, materials, services, equipment and appliances required for Portland cement concrete paving work indicated on the drawings and specified

### 1.2 WORK INCLUDED, BUT NOT INCLUSIVE

1.2.1 Concrete pedestrian traffic surfaces (walks, ramps,

.2 Concrete vehicular traffic surfaces.

.3 Concrete curbs and gutters.

#### .4 Concrete traffic approaches. 1.3 REFERENCE PUBLICATIONS AND STANDARDS

1.3.1 Governing Authority:

Applicable standards and regulations of state and municipal agencies having governing authority over the work specified in this section shall take priority over items specified herein and shown on the drawings unless the requirements set forth herein require a superior quality work.

#### .2 Material Standards: American Society for Testing Materials (ASTM)

.3 Concrete Standards: American Concrete Institute (ACI): ACI-617 "Standard

#### Reinforced Concrete...' 1.4 SUBMITTALS

1.4.1 Testing Laboratory Reports:

Furnish three copies of the test reports to the

Owner, indicating results of the cylinder test.

Specifications for Concrete Pavement and Bases."

ACI-395 "Manual of Standard Practice for Detailing

#### PART II - PRODUCTS 2.1 FORM MATERIAL

2.1.1 As specified in CONCRETE FORM WORK.

#### 2.2 BASIC MATERIALS 2.2.1 Concrete:

As Specified in CAST-IN-PLACE CONCRETE

.2 Reinforcing Steel: 2.2.2.1 Bars

ASTM A615, grade 60 or as called out in

notes on the drawings.

## .2 Wire Fabric

ASTM A185, welded steel wire fabric as noted on the drawings.

# 2.3 MISCELLANEOUS MATERIALS

2.3.1 Air Entroining Agent

ASTM C-494, Master Builders or equal.

## ASTM C0260, Master Builders or equal.

.2 Dispersing Admixture:

#### .3 Curing Compound: ASTM C-309, No. 40W by A. C. Horn Company or equal.

.4 Joint Filler:

#### ASTM D1751, pre-molded fiber filler, unless shown otherwise on the drawings.

.5 Joint Sealer: ASTM D-1190, Code 2351.

## 2.4 CONCRETE MIX DESIGN

2.4.1 Contractor shall employ and pay for, as a part of the contract price, the services of an Ownerapproved independent testing laboratory to determine actual design mix to be used, based on the following:

2.4.1.1 Concrete paving: 3000 psi at 28 days. Concrete walks, curbs, and gutters: 3000 psi at 28 days.

### PART III - EXECUTION

### 3.1 INSPECTION OF SUBGRADE

3.1.1 Inspect subgrades prepared as specified in EARTHWORK and report any deficiencies to the Owner before beginning work. Commencement of work shall indicate acceptance of subgrades by this Contractor.

### 3.2 CONSTRUCTION

3.2.1 General:

Deliver and place concrete as specified in CAST-

### .2 Curbs and Gutters:

3.2.2.1 Configurations

Construct to cross-sectional details shown on drawings and at indicated locations. Curbs may be fully formed or pulled and troweled to configurations shown on the drawinas.

### .2 Reinforcement

Reinforce as indicated on the drawings with continuous reinforcing bars lapped 30 bar diameters and securely tied at all splices. Metal chairs shall be used to hold the reinforcing steel in the proper

#### .3 Expansion Joints

Construct 1/2" wide expansion joints with joint filler across lengths of curb at all tangent points and at not more than thirty foot intervals. Construct one inch wide expansion joints with joint filler between curbs and concrete paving. All fixed objects, such as buildings, poles, pipes, catch basins, etc., within or abutting the concrete shall be separated from the concrete by expansion joints.

#### 3.2.2.4 Finishing

Finish surfaces with dense uniform texture equal to burlap drag and cross—score with 1/4" deep cross joints at ten foot intervals with edges smoothed 1/8".

#### .5 Joints

Fill expansion joints with joint filler except for space 3/4" deep at surface. After concrete has set, clean the open joint above filler and fill with joint sealer in accordance with instructions of sealer manufacturer.

#### 3.2.3 Traffic Approaches and Vehicular Traffic Surfaces: 3.2.3.1 Configurations

Construct to cross-sectional details shown on drawings and at indicated locations.

.2 Reinforcement

Reinforce with #3 minimum size reinforcing bars 18" on center both ways, unless otherwise indicated or noted on the

.3 Expansion and Construction Joints At intentional points for stoppage of concrete placing, use expansion joints. At unintentional points of stoppage of

concrete placing, use continuation of reinforcing through joints. Construct 1/2 inch wide expansion joints with joint filler at locations shown on the drawings. Construct 1/2 inch wide expansion joints with joint filler between curbs and concrete paving. All fixed objects, such as buildings,

poles, pipes, catch basins, etc., within or

abutting the concrete shall be separated

from the concrete by expansion joints.

.5 Finishing

sealer manufacturer.

3.2.3.4 Joint Filling and Sealing Fill expansion joints with joint filler except for space 3/4" deep at surface. After concrete has set, clean the open ioint above filler and fill with joint sealer in accordance with instructions of

with ten foot straight edge. Finish sur-

face to gritty texture with burlap drag o

straight continuous strokes with a stiff

bristle push broom. Finish all edges

#### Vibrate, screed and float concrete to level and test the surface, which shall not vary over 1/4" in ten feet when tested

smooth with 1/8" or 1/4" radius. 3.2.4 Walks:

# 3.2.4.1 Configurations

#### Construct to cross-sectional details shown on drawings and at indicated locations.

.2 Subgrade Concrete shall be placed over 6" subgrade soil compacted to at least 95% of Standard Proctor (ASTM D698) maximum laboratory dry density at between optimum and 2% above aptimum moisture content as shown on the drawinas.

#### Reinforce with 6 x 6 x W1.4, WWF, minimum reinforcing unless otherwise indicated or noted on the drawings.

.4 Expansion Joints

.3 Reinforcing

Construct expansion joints as detailed in locations shown on the drawings.

### 3.2.4.5 Finishing

### 3.2.4.5.1 General:

Finish surfaces not noted on the drawings to be finished otherwise shall be finished to a "broom" or "burlap drag" gritty surface. Tool all joints and all edges to provide a smooth border to each section or division of the walk. Finish all vertical surfaces in a manner that leaves the exposed surfaces free of "honevcombina" and form marks. Any damaged surfaces shall be repaired and stone-rubbed to match adjacent finished surfaces.

### 3.3 CURING CONCRETE

3.3.1 Apply a white-pigmented type curing compound at a uniform rate of approximately 200 sq. ft./gallon, or as recommended by curing compound manufacturer as soon as the finishing operation has been completed and the concrete has lost its water sheen. The curing procedure must protect the concrete, including all exposed surfaces against loss of moisture and rapid temperature change for a period of not less than four days from the beginning of the curing operation and without damage to, or marking of the finished concrete surface. Traffic shall not be allowed on finished concrete for a minimum period of

### 3.4 TESTING

3.4.1 Independent Testing Laboratory:

Contractor shall employ and pay for, as a part of the contract price, the services of an Ownerapproved independent testing laboratory to perform concrete cylinder testing. Test cylinders shall be taken and cured by the Contractor and tested by the testing laboratory for each different class of concrete poured in any one day. Cylinders shall be taken in accordance with ASTM C31, and cured and tested in accordance with ASTM C39. One set of three cylinders is required for each 50 cubic yards of concrete or less, placed in any one day. One cylinder shall be tested at 7 days, one cylinder shall be tested at 28 days and one cylinder shall be held as a spare from each set of three cylinders as

### 3.4.2 Contractor Tests:

3.4.2.1 Slump Tests

.2 Air Entrainment

ASTM C231.

in condition acceptable to the Owner.

specified above.

Slump tests shall be taken by the Contractor when cylinders are taken, and shall show maximum slump 5" and minimum slump 3".

Air content by volume: 5% to 7% based on

volume shall be determined in accord with

#### measurements made in concrete mixtures at point of discharge at job site at time slump tests are made. Air content by

3.5 CLEANING CONCRETE 3.5.1 Concrete approaches, sidewalks, and related work shall be hosed down with water, scrubbed with fiber

brushes, allowed to dry and be left broom clean and

THESE PLANS HAVE BEEN REVISED TO CONFORM WITH CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR.

#### 3.6.1 Upon completion of work of this section remove related debris from premises.

END OF SECTION

3.6 CLEAN-UP

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