INTERAGENCY QUALITY ASSURANCE COMMITTEE (IQAC)

Offsite Inspection and Testing

Use of Selected Backfill Material

1.0 PURPOSE: This policy establishes the guidelines by which the IQAC Agencies will review and approve the use of materials as backfill for trenches.

2.0 REFERENCE CODES AND STANDARDS:

2.1 Clark County Standard Specifications: Section 207 "Structural Backfill", Section 208 "Trench Excavation and Backfill" and Section 704 "Base Aggregates".

2.2 Other: NRS 338.176, NAC 625.550, most current ASTM, AASHTO, NDOT test procedures as indicated in applicable section of Uniform Standard Specifications.

2.3 Associated IQAC Procedures: Final Grading Report for Public Off-Site Improvements.

2.4 City of North Las Vegas: 1996 Trench backfill policy .

3.0 STATEMENT OF POLICY:

SUBMITTAL

Submittal format shall be completed in accordance with the current IQAC procedure and in compliance with the NRS 338.176 and NAC 625.550 statutes.

The project developer or their representative shall submit a transmittal letter to the IQAC jurisdictional agency requesting the review and approval of the materials report, and/or recommendation for the proposed use of material to be used on the project. The transmittal shall be submitted prior to utilization of the material. A written response will be issued. During the review period the contractor may proceed, at his or her own risk, if approved by the agency and the submittal includes an approval recommendation from the responsible engineer.

REPORT

The report must be prepared by, or under the direction of, a Professional Engineer registered in the State of Nevada. The report shall include a plot plan showing the locations of the samples obtained and tested, the test data supporting the recommendations and any limitations to recommendations for acceptance. The report must be signed and stamped by the responsible engineer.

If the use of materials not meeting the specifications requirements is recommended and allowed by the Geotechnical Engineer, a specific recommendation parameters are required. The minimum information to be specified is the moisture range, minimum density, and maximum lift thickness. A Final Trench Backfill Report, verifying the backfill material is in compliance with the Geotechnical recommendations, is required. The report shall be submitted to the IQAC jurisdictional agency for review and approval prior to the placement of aggregate base material. The report must be prepared by, or under the direction of, a Professional Engineer registered in the State of Nevada, and must include all test and sampling data. The report must be signed and stamped by the responsible engineer.

If a Final Grading Report is required, the placement report content may be included in that report. However, that report must also be submitted prior to placement of aggregate base material.

SAMPLING AND TESTING

Materials shall be sampled and tested as follows:

- Selected backfill (on-site or import) must meet the requirements of Clark County Uniform Standard Section 207.

- Sampling is required at a minimum of 1 per cumulative 1,000 linear feet, and fraction thereof. A minimum of 2 samples per project.

- A moisture-density value and curve must be determined for each soil type present. The AASHTO Method T180[1] shall be used.

[1] Refer to the IQAC Revision to AASHTO Standard Test Method T180 policy statement dated September 11, 2000.

- The material must be obtained and tested by an approved laboratory. The most current AASHTO, ASTM, NDOT test procedures shall be used. Testing requirements shall be from the applicable sections of the Uniform Standard Specification.

- Placement and compaction must be in compliance with the Clark County Uniform Standard Specifications, Section 208.

- Approval to use native soils, as Selected Backfill does not constitute acceptance of the material. All construction materials are subject to inspection and/ or testing by the responsible agency personnel. Any material that does not conform to the engineering characteristics of those materials approved for use shall be removed and replaced with acceptable material.

- **In the City of North Las Vegas**, the criteria in attachment "A" must be used.

4.0 EFFECTIVE DATE

EFFECTIVE DATE: March 01, 2002

5.0 TEST REPORTING TO INCLUDE THE FOLLOWING:

- Recommendation of the Engineer
- Sieve results
- Plastic Index
- Liquid limit
- Proctor values with curve and rock correction procedure
- Plot plan of road and streets with sample locations identified and areas indicated that are represented by the sample.
- Report stamped by the Professional Engineer of record
- If testing provided by another laboratory, that data needs to be stamped by that laboratory engineer and included in the report.

6.0 SIGNATURES

12/12/01

Daniel W. Muirhead, P. E. Date
City of Las Vegas
Construction Services Superintendent

12-12-01

Gary Johnson Date
Asst Super Construction Services
Testing

Ken Divich Date
Construction Services Supervisor
City of North Las Vegas

12-13-01

Dale Daffern, P. E. Date
Construction Services Manager
City of North Las Vegas

29 NOV 01

Michael Dunning, P. E. Date
Quality Assurance Supervisor
Clark County Public Works
Construction Division

12/18/01

Ed McGuire, P. E. Date
Quality Control Engineer
City of Henderson

11/29/01

Andy Orosco Date
Materials Testing Supervisor
City of Henderson

11-25-01

Bill Tanner Date
Date Public Works Director
City Of Mesquite

1/9/02

Dick Renshaw Date
Boulder City

6.0 SIGNATURES

Daniel W. Muirhead, P. E. Date
City of Las Vegas
Construction Services Superintendent

Gary A. Johnson Date
Asst Super Construction Services
Testing

Ken Divich Date
Construction Services Supervisor
City of North Las Vegas

Dale Daffern, P. E. Date
Construction Services Manager
City of North Las Vegas

Michael Dunning, P. E. Date
Quality Assurance Supervisor
Clark County Public Works
Construction Division

Ed McGuire, P. E. Date
Quality Control Engineer
City of Henderson

Andy Orosco Date
Materials Testing Supervisor
City of Henderson

Bill Tanner Date
Date Public Works Director
City Of Mesquite

Dick Renshaw Date
Boulder City

ATTACHMENT A

Exception for the City of North Las Vegas Only

When the completed select backfill test results from the sample indicate a Plasticity Index of 4 or greater a, swell potential test wll be required.

The swell potential test will be conducted as follows:

- Sample will be undisturbed or remolded using a I -inch high ring.
- After preparation, the sample will be dried for a minimum of 8 hours in an oven at 60 ' C . Shrinkage of the sample will be noted but "voids" will not be filled.
- The sample will then be placed in an apparatus with a porous stone top and bottom- A 60 psf surcharge will then be placed on the sample. An initial height reading will be taken. The sample will then be submerged in tap water at room temperature.
- Expansion / swell will be measured for 24 hours or untfl there is less than 0.0002 inch movement per hour, but not less than 3 hours submerged time.
- Expansion will be determined by dividing the expansion/ swell measurement by 1.00 inches (initial sample height).
- There will not be any adjustment of the result for "rock correction" or other factors.

Undisturbed Sgmples:

Undisturbed refers to a sample obtained from natural soils or fill soils by pushing, driving, etc., the sample ring into soil in such a manner as to minimize disturbance and to not remold the sample. Small protruding gravel may be removed and replaced by soil. The removal / replacement should be less than 5 percent.

Remolded Samples:

The bulk material should be passed through a No. 4 sieve. The sample should be remolded in the test ring to within 2 percent of optimum moisture content and to 2 percent of the density based on recommended compaction percentage in the geotechnical report. If there is not any data on the maximum density or optimum moisture content, then the sample should be

remolded to the estimated recommended compaction density at near optimum moisture content.

(1) If the results of the swell test(s) on samples indicate a swell potential of 12% or less, the material may be used as backfill material prescribed by the Geotechnical Engineer of Record.

(2) If the results of the swell test(s) indicates a swell potential of greater than 12%, the material must be blended with other material to reduce the swell potential to 12% or lower and maintain a minimum of 20 percent passing the # 200 sieve.

3) When import materials are proposed by the Geotechnical Engineer of record for use as off-site trench backfill material, the import must be tested as described and meet the criteria outlined below:

1. The import must have a swell potential of 12% or less. If native soils are fine graded, the import should have a minimum of 20% fines passing the # 200 sieve.