CONSTRUCTION INSPECTION CHECKLIST

General Construction Site

1. Contractor has all necessary permits to work in Municipal road where applicable, i.e. Construction Permit, Insurance, Bonding, etc.
2. Safety to public considered: (barricades, covered walkways, etc.)
3. Barricades around excavations in street.
4. Barricades around stockpiled materials in street.
5. Adequate detour signs to get the public through or around the construction area.
6. Adequate channelization for vehicular and pedestrian traffic.
7. Buffer area provided between the public and work area.
8. Adequate separation of vehicular and pedestrian traffic from one another.
9. Streets clear of mud and debris.
10. Dust control provided.
11. Contractor not using street to store equipment and materials unnecessarily.
12. Clean-up in street closely following the work.
13. Clean-up in easement areas closely following the work.
14. Driveway accesses being maintained or alternate arrangements for access made where necessary.
15. Photographs taken in all easement areas prior to construction.
16. Photographs taken in all developed areas prior to construction (boulevard landscaping, asphalt, etc.).
17. Existing traffic signs unobstructed by equipment, materials, etc.

Watermain

1. Final Health Certificate received from Ministry of Health Public Health Engineer.
2. Contractor has all necessary permits to work in City street where applicable.
3. Safety to public considered.
4. Traffic and pedestrians are not unduly inconvenienced
5. Provision for emergency vehicles to pass.
6. Pipe located on line (max. 150 mm deviation) - batter boards where applicable.

7. Trench width - (min. = d + 300 mm, max. = d + 600 mm to 100 mm above pipe).

8. Adequate cover
   - Min. 1.2 m measured from top of pipe
   - in undeveloped areas pipe laid so that required cover will be realized after street cut to finished grade.

9. Type and class of pipe checked.

10. Size of pipe.

11. Handling of pipe.

12. Pipe joints.

13. Correct bedding material (8 mm max.) sand.

14. Sufficient bedding under pipe (min. 100 mm and min. 150 mm in rock).

15. Bedding hand tamped around pipe.

16. Sufficient cover hand placed before machine backfilling (0.3 m over pipe).

17. Leakage tests.

18. Backfill
   - approved native max. size 150 mm.
   - imported max. size 75 mm pit-run.

19. Adequate thrust blocking and/or joint restraints

20. Pipe and fitting joints accessible for repair at thrust blocks.

21. Valves in proper locations with valve markers where necessary.

22. Valve and valve boxes plumb.

23. Valve boxes extend to grade and clean.

24. Hydrants in correct location and operational.

25. Hydrants at correct elevation - (hydrant flange elev.).

26. Compaction bedding - 95% modified Proctor. Backfill under traveled areas 95% modified Proctor; backfill under untraveled areas 90% modified Proctor.

27. Clean-up following backfilling closely.

28. Water services not tapped too close to a joint or to each other (min. distance 1.0 m).

29. A gooseneck has been provided in water service (min. 650 mm bury on service at bottom of meter setter).

30. The corporation stop has been properly installed and left in the open position.

31. The meter setter has been installed in the proper location.

32. Water services clearly marked and stake painted 'blue'.

33. Flushouts located correctly and painted.

34. Air valves located correctly.

35. Pressure tests.

36. Chlorination - includes pre-chlorination flushing, chlorination (Residual Drop) and final flushing (Samples taken/tested).

Sanitary and Storm Sewer Construction Inspection

1. Contractor has all necessary permits to work in Municipal road where applicable.

2. Safety to public considered.

3. Traffic and pedestrians are not unduly inconvenienced.

4. Provision for emergency vehicles to pass.

5. Pipe located on line - batter boards at intervals not exceeding 15 m with at least 3 up at all times or approved alternative.

6. Trench width - (min. = d + 300 mm, max. = d + 600 mm to 100 mm above pipe).

7. Adequate cover - min 1.5 m from top of pipe in traveled areas, min 1.0 m elsewhere.

8. Type and class of pipe checked.

9. Size of pipe.

10. Handling of pipe.

11. Pipe joints - rubber gaskets on.

12. Correct bedding material (8 mm max.) for PVC pipe.

13. Sufficient bedding under pipe (min. 100 mm and min. 150 mm in rock).

14. Bedding hand tamped around pipe.

15. Sufficient cover hand placed before machine backfilling (0.3 m over pipe).

16. Backfill
- approved native max. size 150 mm
- imported max. size 75 mm pit-run.

17. Manholes in correct locations.

18. Cleanouts in correct locations.

19. Catchbasins in correct locations. Storm drain inlet and outlet structures installed correctly.

20. Compaction equipment on-site and being used.

21. Compaction around manholes.

22. Inverts in manholes and cleanouts as per drawings.

23. Benching broom finished. Channeling smooth.

24. All necessary stubs in manholes.

25. Mortar in manholes neat.

26. Steps in manholes aligned and spaced properly.

27. Manhole frames and covers marked - Town of Ladysmith "Sanitary Sewer" or "Storm Sewer", as applicable.

28. Clean-up following backfilling closely.

29. Service connections
- at correct location
- at correct grade - min. 2%
- marker stake installed with depth to invert
- marker stake paint (RED -sanitary), (GREEN -storm).

30. Sanitary and storm mains cleaned by power flushing.

31. Testing of sanitary lines completed.

32. All lines video taped MH to MH.

33. Testing of manholes completed.

Streets

1. Contractor has all necessary permits to work in Municipal road where applicable.

2. Safety to public considered.

3. Traffic and pedestrians are not unduly inconvenienced.

4 . Provision for emergency vehicles to pass.

5. Right-of-Way cleared and grubbed full width.

6. All overburden and topsoil stripped to road subgrade.

7. Subgrade constructed to width (600 mm beyond base course width each side - Rock shattered to 300 mm below subgrade).

   Subgrade constructed to correct
   - width
   - grade
   - crowned

8. Compaction where necessary in 150 mm lifts in fill areas for subgrade.

9. Sub-base material satisfactory (75 mm minus pit-run).

10. Sub-base constructed to correct
    - width
    - thickness
    - grade
    - crowned

11. Check for soft spots particularly around gutters, curb returns, manholes, catchbasins, valves, etc.
    Sub-base compaction 95% modified Proctor.

12. Base course material satisfactory (20 mm minus crush).

13. Base course constructed to correct
    - width
    - thickness
    - grade
    - crowned

    Base course compaction - 95% modified Proctor.

14. Base at correct elevation so asphalt will meet gutter

15. Proof rolling subgrade, sub-base and base course.
    Moisture content and modified Proctor density tests on subgrade, sub-base and base course.

16. All valve boxes, manholes, etc., raised to finish pavement grade.

17. All driveways graded where required.

18. Boulevard areas sloped, graded, topsoiled and seeded.

Paving Inspection

1. Temperature of mix consistent (120 Deg. C min., 150 to 160 Deg. C max.) at time of placing.

2. Edge of existing pavement and gutters cleared and given tack coat (not too thick).

3. Adequate traffic control.

4. Continuous operation being maintained.

5. Initial rolling - steel wheel roller.

6. Secondary rolling - pneumatic tired roller.

7. Finish rolling - steel wheel roller.

8. Transverse joints in succeeding courses offset a min. of 600 mm in adjacent lanes offset a min. of 3 m.

9. Breakdown rolling as soon as possible, 5 km/h (watch for pushing or cracking).

10. Rolling speed (max. 8 km/h for pneumatic, max. 5 km/h for steel wheel).

11. Longitudinal joints properly rolled. (Joints to be rolled by passing roller on the previously compacted lane with one wheel projecting 100 to 150 mm on the new lane. Min. 2 passes.)

12. Pavement edges rolled concurrently with the longitudinal joints and not left exposed more than 15 minutes.

13. On super-elevated curves rolling low side to high side.

14. Compacted thickness.

15. Bird baths.

16. Crown where applicable.

17. Driveways reinstated.

18. Shoulder gravel if no curb and gutter.

Curb and Gutter

1. Subgrade prepared correctly.

2. Sub-base and base thickness and width correct.

3. Roll test.

4. Curb cross section correct (width, thickness)
   - mountable
   - non-mountable
   - integral mountable curb and gutter
   - integral non-mountable curb and gutter

5. Radius of curb returns correct.

6. Driveway and lane crossing letdowns located correctly.

7. Gutter longitudinal grade (min. 0.5%).

8. Curb return longitudinal grade (min. 1.0%)

9. Tolerances satisfactory (max. deviation 6 mm in 3 m horizontally and vertically).

10. Expansion joints - both sides of lanes and crossings
    - maximum 9.0 m intervals
    - both ends of all curb returns
    - both sides of CB's (1 m from the CB centreline)
    - material type

11. Contraction joints
    - max. 3.0 m intervals to 1/2 depth of concrete section

12. Expansion joints around structures (Hydro poles, hydrants, etc.)

13. Longitudinal isolation (bond break/emulsion) joints between curb and sidewalk.

14. Concrete curing compound (approved).

Sidewalks and Walkways

1. Subgrade prepared correctly.

2. Sidewalk and walkway sub-base thickness and width (same as adjacent street).

3. Sidewalk and walkway base thickness and width (same as adjacent street).

4. Sidewalk and walkway sub-base (75 mm minus).

5. Sidewalk and walkway base in walkways (20 mm minus).

6. Sidewalk width in streets according to drawings.

7. Walkway width according to drawings.

8. Sidewalk surface finish and edging.

9. Sidewalk and walkway grade min. 0.5%.

10. Sidewalk crossfall grade 2%.

11. Sidewalk thickness satisfactory (100 mm: NMC, 150 mm: MC).

12. Sidewalk vertical and horizontal alignment.

13. Pedestrian ramps located correctly.

14. Pedestrian ramp
    - surface finishing and edging
    - directional notch
    - thickness at gutter
    - ramp tamper

15. Expansion joints
    - at both ends of lanes and crossings

- at both ends of curb returns
- at max. spacing of 9.0 m
- material type

16. Contraction joints
- at max. spacing of 1.5 m
- groove depth 1/2 of depth of concrete section

17. Sidewalk vehicle barricades provided at the entrance to walkways

18. Isolation expansion joints around
- hydro poles
- light poles
- hydrants
- manholes
- other structures

19. Longitudinal isolation (bond break/emulsion) joints between curb and sidewalk.

20. Longitudinal isolation joints between walls and sidewalk.

21. Concrete curing compound approved.

Street Lighting

1. Locations in accordance with approved design drawings.

2. Exposed conduit hot-dip galvanized rigid steel-conduit clamps and fittings hot-dip galvanized malleable iron.

3. Buried conduit rigid PVC (min. 32 mm diameter).

4. PVC couplings solvent cement weld type.

5. Approved utility warning tape 300 mm above and directly over conduit.

6. Junction boxes have special permission.

7. Junction boxes approved for electrical use.

8. Junction box lids have a bolt locking device.

9. Junction box lids marked "electric" on outside face of cover with permanent legible lettering.

10. Street light poles
- hot-dip galvanized steel, octagonal, tapered davit type
  or
- square steel with one coat primer and two coats flat black enamel
- nut covers
- reinforced handhole with gasketted cover assembly
- 10 mm x 20 mm grounding stud provided with 2 nuts and 2 washers
- pole length correct
- davit arm length correct

- CSA certified

11. Anchor bolts for poles
- correct diameter (25 mm)
- length as shown on the drawings
- hot-dip galvanized
- minimum grade 60 bolts

12. Street light pole on service base 0.9 m shorter than other poles.

13. Luminaires
- high pressure sodium-CSA certified
- integral ballast (120v) and lamps
- rated 100 watts or as shown on drawings
- polycarbonate refractor (acrylic or glass unsatisfactory)
- gasket for refractor
- adjustable slip fitter
- adjustable lamp socket
- luminaire on service pole equipped with twist-lock receptacle for photo-electric controller.
- integral ballast suitable for operation at minus 34 C
- integral ballast connected to a terminal block
- protected by a fuse block with 10 Amp fuse

14. Photo-electric controller
- cadmium sulphide type
- externally adjustable sensitivity
- twist lock base
- 120v operating voltage
- delayed action type
- oriented as required

15. Conduit capped or covered when electrical work not in progress.

16. Conduit cleaned before pulling conductors.

17. Buried conduit capped prior to pouring concrete or backfilling.

18. Conduit minimum 75 mm above street light bases.

19. Bends to be standard rigid PVC.

20. Pulling of conductors
- wire fed to prevent twisting, kinking or looping
- talc or other CSA approved wire lubricants being used (no grease)

21. Conductor connections in junction boxes secured with solderless connectors and sealed with self-bonding tape, covered with PVC tape and dipped in approved silicon rubber-based sealer.

22. Junction boxes have a concrete brick base covering the bottom of the junction box and 50 mm beyond the outside wall.

23. Junction boxes flush with the top of surrounding finished grade.

24. Ducts grouted in junction box knock-out holes.

25. Service panels and other electrical equipment protected against dust, moisture, and damage while work in progress.

26. Street light bases at correct location and offset.

27. Pedestal portion of street light bases formed to the given dimensions for the top 200 mm of base and elevation correct.

28. Form work removed and pole bases backfilled and compacted before mounting poles.

29. Temporary protective covers on pole bases that have exposed wiring until pole installed.

30. Street light poles plumb.

31. Not more than 6 shims used per pole for leveling - construction also.

32. Poles cleaned after installation - construction.

33. Davit arms at right angles to the centre of the road.

34. Exposed portions of anchor bolts and nuts coated with no-oxide type grease.

35. Luminaires cleaned after installation.