



GAUTENG PROVINCE

ROADS AND TRANSPORT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF ROADS AND TRANSPORT

TENDER NUMBER: DRT 01/05/2026

APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

PROCUREMENT DOCUMENT

MAY 2026

ISSUED BY:

HEAD OF DEPARTMENT
DEPARTMENT OF ROADS AND TRANSPORT
PRIVATE BAG X83
MARSHALLTOWN
2107

NAME OF TENDERING ENTITY:.....

ADDRESS:

Email.....

TEL NO.

TOTAL OF PRICES INCLUSIVE OF VALUE ADDED TAX:

R.....

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

CONTENTS

THE TENDER

PART T1 : TENDERING PROCEDURES

- T1.1 TENDER NOTICE AND INVITATION TO TENDER
- T1.2 TENDER DATA

PART T2 : RETURNABLE DOCUMENTS

- T2.1 LIST OF RETURNABLE DOCUMENTS

THE CONTRACT

PART C1 : AGREEMENTS AND CONTRACT DATA

- C1.1 FORMS OF OFFER AND ACCEPTANCE
- C1.2 FORMS OF AGREEMENT

PART C2 : SCOPE OF WORK

PART C3 : ANNEXURES

- ANNEXURE A: Location of Existing Secondary Stations
- ANNEXURE B: Specification for the Supply and Installation of Inductive Loops on Roads for Traffic Surveys
- ANNEXURE C: Location of Permanent Traffic Counting Stations
- ANNEXURE D: Specifications for Supply, Installation, and Commissioning of Comprehensive Traffic Monitors (CTM / HWIM's)
- ANNEXURE E: Assessment Criteria
- ANNEXURE F: Specification for Pavement Patching and Repairing
- ANNEXURE G: Locations of Manual Nodes for Gauteng Province on all Provincial Roads

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

PART T1: TENDERING PROCEDURES

T1.1 Tender Notice and Invitation to Tender

THE GAUTENG PROVINCE, DEPARTMENT OF ROADS AND TRANSPORT REQUESTS INTERESTED TENDERERS TO BID FOR THE FOLLOWING TENDER:

TENDER NO: DRT 01/05/2026. Appointment of a service provider to perform specialized traffic surveying on provincial roads in Gauteng Province for a period of (3) three years.

TENDER NUMBER	SERVICE	COMPULSORY SITE BRIEFING	CLOSING DATE TIME AND ADDRESS
DRT 01/05/2026	Appointment of a service provider to perform specialized traffic surveying on provincial roads in Gauteng Province for a period of (3) three years.	Venue: Main Boardroom, Department of Roads and Transport 1215 Nico Smith Street Koedoespoort Pretoria Date: 17 June 2026 Time: 10h00 am NB: Failure to attend site briefing will result in disqualification	Date: 06 July2026 Time: 11H00 Tender Box Gauteng Department of Roads and Transport, Ground floor, Life Centre Building, 45 Commissioner Street, Johannesburg.

COMPULSORY / MANDATORY TENDER REQUIREMENTS:

Failure to submit the following required documents will render the bidders tender disqualified:

- Proof of current registration with ECSA as a Professional Civil Engineer/Technologist (Pr Eng/Tech). The prospective bidders must provide proof of registration with the mentioned professional bodies, or the applicable registration number as part of the bidder's tender documents. **(NB: Candidates not accepted)**
- Bidders must attend the compulsory site briefing as indicated above. The attendance register must be completed and will be used as proof of your attendance. The representative attending the compulsory site briefing may only attend on behalf of one bidding enterprise and/or Joint Venture/Consortium/Trust
- Complete, sign and submit all compulsory SBD documents, i.e. SBD 4 and SBD 6.1
- In the case of joint ventures and consortia, a detailed signed agreement must be attached as part of the submitted tender document, which must be signed by all parties to the agreement detailing the percentage (%) revenue split between the parties and portion/s of work to be shared.

NB: Bidders who are listed on the National Treasury's register of defaulters and restricted suppliers will be automatically disqualified.

NB: In case of a Joint Venture/Consortium/Trust bidders must complete and submit separate SBD4 forms

NB: No CVs are to be submitted by bidders for key personnel. (Fully complete B1 forms for all key personnel)

OTHER KEY RETURNABLES:

- Valid Tax Compliance Status Pin issued by SARS
- Registration documents of the business with the Companies and Intellectual Property Commission (CIPC).
- Central Supplier Database (CSD) registration summary report
- Certified ID copies of company members and shareholders. (NB: the date of certification must be less than 3 months from the date of the bid closure).

FUNCTIONALITY EVALUATION:

Functionality will be scored out of 100 points and the minimum threshold to qualify is 70 points. Bidders who fail to meet the minimum threshold will not be considered for further evaluation.

<p>Key Staff (Max 20 points)</p> <p>Bidders MUST complete the schedule for key staff attached in the tender document and must clearly indicate, project description duration and contactable references. (NB: Failure to complete the schedule for key staff will result in the bidder scoring zero points)</p>	<p>Company relevant experience of Bidder (Max 35 points)</p> <p>(Failure to submit required completion certificates will result in the bidder scoring zero points)</p>	<p>Company Capacity (Max 40 points)</p> <p>Bidders must submit electronic counters with serial numbers and data must be provided in RSA Bidders must complete Schedule of Plant and Equipment</p>	<p>Quality Control Procedures (Max 5 points)</p>
<p>Professional Civil Engineer/ Technologist (Pr Eng/Tech): with experience in the field of Traffic Engineering/Traffic Impact Assessment, will be assessed as follows: (Max 20 points)</p> <p>Experience:</p> <ul style="list-style-type: none"> • 10 or more years' experience in the field of Traffic Engineering/Traffic Impact Assessments (20 points) • 5 to less than 10 years' experience in the field of Traffic Engineering/Traffic Impact Assessments (10 points) • 3 to less than 5 years' experience in the field of Traffic Engineering/Traffic Impact Assessments (5 points) • Less than 3 years' experience in the field of Traffic Engineering/Traffic Impact Assessments (0 points) 	<p>Previously completed Traffic Surveying contracts: 3 or more annual projects completed 35 points</p> <p>2 annual projects completed 20 points</p> <p>1 annual project completed 10 points</p> <p>Failure to attach required completion certificates will result in the bidder getting zero points)</p> <p>NB: Completion certificates must be signed by all relevant parties (Certificate that is not signed by all relevant parties will result in the bidder scoring points)</p>	<p>Electronic counters with capacity to count at least 57 electronic stations per month (includes 30 permanent, 20 secondary stations per month and 7 high speed weigh-in-motion stations) = 40 points</p> <p>Electronic counters with capacity to count less than 57 electronic stations per month = 0 points</p> <p>NB:(Failure to complete schedule of plant and equipment with serial numbers will result in the bidder scoring zero (0) points)</p>	<p>Bidders must submit Quality Management System certificate which is certified with ISO 9001or In-house quality control plan: (5 points)</p> <p>NB:(Failure to submit relevant documents will result in the bidder scoring zero (0) points)</p>

PRICE AND PREFERENCE POINT SYSTEM EVALUATION:

In terms of Preferential Procurement Regulation of 2022, the department will be applying the 80/20 preference point system, which is applicable to bids with a Rand value equal to, or below R 50 million (all applicable taxes included), shall be applied, where a maximum of 80 points will be allocated for price and maximum of 20 will be allocated for the Specific Goals specified in this tender.

AREA POINTS	POINTS (90/10)
Price	80
Preference Point – Specific Goals	20
Total points for Price and Preference Points	100

Specific Goals Requirements:

To qualify for Specific Goal points, Bidders must provide evidence of the below requirements per the specified Historically Disadvantaged Individuals (HDI) categories. Bidders must submit verifiable documentation as proof to claim the Preference Points.

Bidders who fail to submit valid B-BBEE credentials will forfeit their preference points.

SPECIFIC GOALS	PROOF OF EVIDENCE	POINTS (20)
HDI	The bidder must submit a valid B-BBEE Certificate or Sworn Affidavit with at least 51% black ownership to claim points.	1
Woman	The bidder must submit a valid B-BBEE Certificate or Sworn Affidavit with at least 51% owned by women to claim points.	7
Youth	The bidder must submit a valid B-BBEE Certificate or Sworn Affidavit with at least 51% owned by youth to claim points	5
Disability	The bidder must submit a valid B-BBEE Certificate or Sworn Affidavit with at least 51% owned by people with a disability to claim points.	5
Locality	The bidder must submit a copy of a municipal rates & taxes invoice or statement not older than three (3) months in the name of the Bidder or proof of lease agreement in the name of the Lessee signed by both parties.	2

Guidance on valid B-BBEE Certificates and/or valid Sworn Affidavits to substantiate preference points claims.

- Valid B-BBEE Certificate issued by a SANAS accredited agency.
- Any Joint Venture/Consortium/Trust must submit a valid consolidated B-BBEE Certificate issued by a SANAS accredited agency. No sworn affidavit will be accepted for a Joint Venture/Consortium/Trust.
- The Department is requesting the B-BBEE credentials in order to validate and evaluate the points claimed by the Bidder based on the Specific Goals outlined in this tender document and the SBD 6.1

NB: The submission of a fraudulent B-BBEE certificate will result in the bidder being disqualified and criminal proceedings being instituted against the bidder. The bidder, the shareholders and / or directors will further be restricted from doing business with any organ of the state for a maximum period of 10 years.

NB: Bidders who are listed on the National Treasury’s register of defaulters and restricted suppliers will be automatically disqualified.

Bidders should note the following:

- Functionality will be scored out of 100 points and the minimum threshold to qualify is 70 points.
- The Department will conduct a detailed risk assessment.
- Bidders must sign and submit the GPG Integrity Pact for Businesses along with the tender document

- Tender offers must be inclusive of all applicable taxes, e.g. VAT etc.
- Where the proposed prices of critical materials to be supplied to the Department are considerably less than the expected market price or rates, the Department reserves the right to verify the proposed prices by requesting quotations from the supplier(s) cited in the compilation of the bid.
- Potential suppliers must note that in terms of Departmental policy, the Department reserves the right to cancel a contract and blacklist any supplier for a period of at least 12 months if the supplier fails to adequately perform in terms of the awarded contract.
- The bid validity period is 120 days (excluding public holidays) However, the Department reserves the right to request all bidders to extend such validity period should the need arise.
- The successful bidder will be required to enter into a formal contract with the Department. Such contract will be governed in terms of the General Conditions of Contract (Check the new GCC 2025).
- The Department will not compensate the bidder for any costs incurred in the preparation and submission of a bid offer, including the costs of any testing necessary to demonstrate that aspect of the offer complies with requirements.
- Tenderers who are listed in the National Treasury's register of defaulters and restricted suppliers will be disqualified.
- After appointment, contractors to submit a 10% guarantee of the awarded contract amount within 15 days after appointment on the format given in the tender document.

Please Note:

1. **Amounts written in words take precedence over amounts in figures, in case of any discrepancy.**
2. **Bidders are required to sign a bids submission register, which will be handled by the security officer.**

Correspondence

- Closing date for enquires: 26/06/2026
- List of bidders will be published after 7 days of the closing of tender.
- Bidders must regularly check, Gauteng e-tender portal / National Treasury e-tender portal (www.e-tenders.gov.za) and Departmental Websites(www.gauteng.gov.za/Departments) for publication of responses and other communication.

OBTAINING TENDER DOCUMENTS

Prospective tenderers can download and print their own version of the tender document (free of charge) by accessing the E-Tender Publication Portal website (www.etenders.gov.za). Tenderers are advised to ensure that all tender documents are properly bound upon submission on the closing date and time. Documents will be available on the E-tenders publication portal from 05/06/ 2026.

Bid Submission

Electronic submissions of Tenders will **NOT** be accepted.

Telegraphic, telephone, telex, facsimile, emails of tenders and late tenders will **NOT** be accepted.

Requirements for sealing, addressing, delivery, opening and assessment of bids are stated in the bid documents.

The Department reserves the right to cancel **OR** not award this tender to any party.

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

T1.2 Tender Data

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the standard conditions of tender.

Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

Clause Number	Tender Data
C1.	General
C1.1	The employer is the Department of Roads and Transport, Chief Directorate Maintenance of the Gauteng Provincial Government, Private Bag X83, Marshall Town.
C1.2	<p>The Tender Documents issued by the employer comprise the following documents:</p> <p>THE TENDER</p> <p>Part T1: Tendering Procedures T1.1 – Tender Notice and Invitation to Tender. T1.2 – Tender Data.</p> <p>Part T2: Returnable Documents T2.1 – List of Returnable Documents.</p> <p>THE CONTRACT</p> <p>Part C1: Agreements and Contract Data C1.1 – Form of Offer and Acceptance C1.2 – Forms of Agreement</p> <p>Part C2: Scope of Work</p> <p>Part C3: Annexures Annexure A: Location of Existing Secondary Stations Annexure B: Specification for the Supply and Installation of Inductive Loops on Roads for Traffic Surveys Annexure C: Location of Permanent Traffic Counting Stations Annexure D: Specifications for Supply, Installation, and Commissioning of Comprehensive Traffic Monitors (CTM / HWIM's) Annexure E: Assessment Criteria Annexure F: Specification for Pavement Patching and Repairing Annexure G: Locations of Manual Nodes for Gauteng Province on all Provincial Roads</p>
	The tenderer is required to submit with his tender a letter of intent from an approved insurer undertaking to provide the Form of Guarantee to the format included in T2.1.2 of this procurement document.
C1.6	Procurement procedures
C1.6.1	General
	The Procurement document as issued by the Department must be downloaded from the internet, and the onus is on the bidder to submit a complete procurement document with no missing pages.
C2.7	<p>The arrangements for a compulsory clarification meeting are as outlined in the published Tender Notice and Invitation to Tender.</p> <p>Tenderers must sign the attendance register provided by the Department at the compulsory site briefing in the name of the tendering entity. Addenda will be issued to and tenders will be received only from those tendering entities appearing on the attendance list.</p>
C2.11	Alterations to documents

Clause Number	Tender Data
	Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or when necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations. No form of correction fluid and/or correction pens are allowed.
C2.12	Alternative tenders will NOT be accepted.
C2.13	Submitting a tender offer.
C2.13.1	Submit a tender offer only, to provide the whole of the works, identified in the contract data and described in the scope of works. Tenderers are to submit one tender only, either as a single tendering entity or as a member of a Joint Venture, Consortium or Trust.
C2.13.2	Return all returnable documents to the employer after completing them in their entirety, by writing legibly in non-erasable ink.
C2.13.3	The complete Tender Document shall be returned with the tender, including all Parts as listed in C1.2 above. Parts of each tender offer communicated on paper shall be submitted as an original only, no copies to be submitted. Tender Document submission as noted per Tender Notice and Invitation to Tender.
C2.13.5	The employer's details and address for delivery of tender offers and identification details that are to be shown on each tender offer package are: Location of tender box: Ground Floor of Life Centre Building Physical address: 45 Commissioner Street, Johannesburg Identification details: TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS Tender closing date and closing time of the tender.
C2.15	The closing date, time and address for submission of tender offers is as stated in the Tender Notice and Invitation to Tender. No telegraphic, telephonic, telex, facsimile or electronic tender offers will be accepted.
C2.16	The tender offer validity period is 120 days from date of tender closure.
C2.16.1	Hold the tender offer valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.
C2.16.2	If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.
C3.	The employer's undertakings
C3.5	Two-envelope system A two-envelope system <u>will not be used.</u>
C3.8.2	A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would: a) Detrimentially affect the scope, quality or performance of the works, services or supply identified in the Scope of Work, b) Significantly change the Employer's or the tenderer's risks and responsibilities under the contract; or c) Affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified.

Clause Number	Tender Data
C3.11.1	<p>Functionality</p> <ul style="list-style-type: none"> • Functionality will be scored out of 100 points and the minimum threshold to qualify is 70 points. Bidders who fail to meet the minimum threshold will not be considered for further evaluation.
C3.11.2	<p>In terms of Preferential Procurement Regulation of 2022, the department will be applying the 80/20 preference point system, which is applicable to bids with a Rand value equal to, or below R 50 million (all applicable taxes included), shall be applied, where a maximum of 80 points will be allocated for price and maximum of 20 will be allocated for the Specific Goals specified in this tender.</p>
C3.13.1	<p>Tender offers will only be accepted if:</p> <ol style="list-style-type: none"> a) The tenderer has in his or her possession a valid Tax Compliance Status Pin issued by the South African Revenue Services or has made arrangements to meet outstanding tax obligations. b) The tenderer or any of its directors is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector. c) The tenderer has not: <ol style="list-style-type: none"> i. Abused the Employer's Supply Chain Management System; or ii. Failed to perform on any previous contract and has been given a written notice to this effect; and d) Has completed the Compulsory Enterprise Questionnaire and that there is no conflict of interest which may impact on the tenderer's ability to perform the contract in the best interests of employer or potentially compromise the tender process.

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

PART T2: RETURNABLE DOCUMENTS

T2.1 List of Returnable Documents

1 Returnable Schedules required for tender evaluation purposes

The tenderer must complete the following returnable schedules as relevant:

- Compulsory Enterprise Questionnaire
- Record of Addenda to Tender Documents
- Certificate of Authority
- Schedule of Proposed Subcontractors
- Schedule of recently Completed and Current Contracts
- Schedule of Plant and Equipment
- Occupational Health and Safety Act: Statement by Tendering Entity
- Experience of Key Staff and Number of Staff Employed
- Quality Management Questionnaire
- Tenderer's Bank Details
- Shedule of Tenderers Litigation History

2 Other documents required for tender evaluation purposes

The tenderer must complete the following returnable documents:

- Certificate of Attendance at Clarification Meeting
- Certificate of Insurance Cover
- Tax Compliance Status for Tenders
- Form of Intent to Provide a Form of Guarantee
- SBD 4: Bidder's Disclosure
- Tenderer's B-BBEE Verification Certificate
- SBD 6.1: Preference Points Claim Form in Terms of the Preferential Procurement Regulations 2022
- SBD 1

3 Returnable Schedules that will be used for tender evaluation purposes and be incorporated into the contract

- Qualifications of Service Rendering by the Tenderer
- Description of Foundation Requirements of WIM Sensors
- Description of Comprehensive Traffic Monitors (WIM)
- On-Line Data Transfer Service and Report Details
- Specification of Software Program and Procedures for Validation of Traffic Surveying Data
- Tenderer's Ability and Capacity
- Details and Proof of Professional Traffic Engineers ECSA Registration and Total Years of

Experience

- Staff and Management Structure
- Compliance with Government Policies
- Breakdown of Tender Price for Traffic Surveying Services Required

BILL OF QUANTITIES

1. Specialised Surveying Services
2. Installation and Maintenance
3. Information Management
4. Traffic Impact Assessment Evaluation
5. Summary of Services

4 C1.1 FORMS OF OFFER AND ACCEPTANCE

5 C1.2 FORMS OF AGREEMENT

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

1. Returnable Schedules required for tender evaluation purposes

Compulsory Enterprise Questionnaire

The following must be furnished. In the case of a joint venture, **separate** enterprise questionnaires in respect of each partner must be completed and submitted.

Section 1: Name of enterprise:

Section 2: VAT registration number, if any:

Section 3: CIDB registration number, if any: (Not Compulsory)

Section 4: Particulars of sole proprietors and partners in partnerships

Name*	Identity number*	Personal income tax number*

* Complete only if sole proprietor or partnership and attach separate page if more than 3 partners

Section 5: Particulars of companies and close corporations

Company registration number

Close corporation number

Tax reference number

Section 6: Record in the service of the state

Indicate by marking the relevant boxes with a cross, if any sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months in the service of any of the following:

- | | |
|--|---|
| <input type="checkbox"/> a member of any municipal council | <input type="checkbox"/> an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999) |
| <input type="checkbox"/> a member of any provincial legislature | <input type="checkbox"/> a member of an accounting authority of any national or provincial public entity |
| <input type="checkbox"/> a member of the National Assembly or the National Council of Province | <input type="checkbox"/> an employee of Parliament or a provincial legislature |
| <input type="checkbox"/> a member of the board of directors of any municipal entity | |
| <input type="checkbox"/> an official of any municipality or municipal entity | |

If any of the above boxes are marked, disclose the following:

Name of sole proprietor, Partner, director, manager, principal shareholder or stakeholder	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

*insert separate page if necessary

Section 7: Record of spouses, children and parents in the service of the state

Indicate by marking the relevant boxes with a cross, if any spouse, child or parent of a sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months been in the service of any of the following:

- a member of any municipal council
- a member of any provincial legislature
- a member of the National Assembly or the National Council of Province
- a member of the board of directors of any municipal entity
- an official of any municipality or municipal entity
- an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999)
- a member of an accounting authority of any national or provincial public entity
- an employee of Parliament or a provincial legislature

Name of spouse, child or parent	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

*insert separate page if necessary

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise:

- i) authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are in order;
- ii) confirms that neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;
- iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;
- iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and
- v) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed	_____	Date	_____
Name	_____	Position	_____
<i>Enterprise name</i>	_____		

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

Record of Addenda to Tender Documents

We confirm that the following communications received from the Employer before the submission of this tender offer, amending the tender documents, have been considered in this tender offer:		
NO.	DATE	TITLE OR DETAILS
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

Attach additional pages if more space is required.

Signed Date

Name Position

Enterprise name

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

Certificate of Authority

This Returnable Schedule is to be completed by the tendering entity.

I/We, the undersigned, are submitting this tender offer and hereby authorise Mr/Ms
 , authorised signatory of the company
 , acting in the capacity of
 to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
		Signature. Name Designation
		Signature..... Name Designation
		Signature..... Name Designation

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

Schedule of Proposed Subcontractors

<p>We notify you that it is our intention to employ the following Subcontractors for work in this contract.</p> <p>If we are awarded a contract, we agree that this notification does not change the requirement for us to submit the names of proposed Subcontractors in accordance with requirements in the contract for such appointments.</p>			
	Name and address of proposed Subcontractor	Description of Work to be executed by Subcontractor	Previous experience with Subcontractor

Attach additional pages if more space is required

Signed Date

Name Position

Enterprise name

TENDER NUMBER: DRT 01/05/2026 APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

Schedule of recently Completed and Current Contracts

List not more than seven contracts completed in the last five years

Contract title:	Employer (name) Place (town)	Reference person		Contract Amount (R million)	Contract Period (months)	Date of Completion*
		Name	Tel			
1						
2						
3						
4						
5						
6						
7						

*Completed means that a certificate has been issued in terms of a contract by the employer, signifying that the whole of the construction works have reached a state of readiness for occupation or use for the purposes intended, although some minor work may be outstanding.

List all current contracts not complete at the time

Project:	Employer (name) Place (town)	Reference person		Contract Amount (R million)	Contract Period (months)	Date of commencement	Date of expected Completion*
		Name	Tel				
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

*Date when defects liability period commenced

Signed Date

Name Position

Enterprise name

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

**Occupational Health and Safety Act:
Statement by Tendering Entity**

I, duly authorised

to represent (company name)

in my capacity as

hereby confirm that I accept full and exclusive responsibility for compliance by myself and all persons who perform work for me with the provisions of the Occupational Health and Safety Act, No. 85 of 1993 (as amended) and all regulations promulgated from time to time, whilst performing work on

.....

I confirm that all employees who perform work on the site shall be properly trained to do this in a manner which is safe and without risk to health and safety to themselves and others in the vicinity and undertake to have our activities adequately supervised in the interest of health and safety.

Signed Date

Name Position

Tenderer

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

Experience of Key Staff and Number of Staff Employed

A CV of the site agent, and general foreman of not more than 2 pages should be attached to this schedule. Each CV should be structured under the following headings:

- 1 Personal particulars
 - name
 - date and place of birth
 - place (s) of tertiary education and dates associated therewith
 - professional awards
- 2 Qualifications (degrees, diplomas, grades of membership of professional societies and also professional registrations)
- 3 Skills
- 4 Name of current employer and position in enterprise
- 5 Overview of post graduate / diploma experience (year, organization and position)
- 6 Outline of recent assignments / experience that has a bearing on the scope of work

Number of Staff Employed

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed _____ Date _____

Name _____ Position _____ 14

Tenderer _____

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

Quality Management Questionnaire

1. Does the Tenderer have a quality management system which is certified in terms of ISO 9001: 2000?

YES	NO
-----	----

2. If “yes”, tenderer to supply summary of structure of system.

3. If “no”, does the tenderer intend to apply for certification and by when?

YES	NO
-----	----

DATE

If the tenderer does not intend to apply for certification he shall submit details of the quality management system presently in place.

Signed _____ Date _____

Name _____ Position _____

Tenderer _____

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

Tenderer's Bank Details

Notes to tenderer:

- 1. The tenderer shall attach to this form a letter from the bank at which he declares he conducts his account. The contents of the bank's letter must state the credit rating that it, in addition to the information required below, accords to the tenderer for the business envisaged by this tender. Failure to provide the required letter with the tender submission may render the tenderer's offer unresponsive in terms of tender condition F.3.8.**
- 2. The tenderer's banking details as they appear below shall be completed.**
- 3. In the event that the tenderer is a joint venture enterprise, details of all the members of the joint venture shall be similarly provided and attached to this form.**

The tenderer shall provide the following:

- i) Name of Account Holder:
- ii) Account Number:
- iii) Bank name:
- iv) Branch Number:
- v) Bank and branch contact details
-

SIGNED BY TENDERER:

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

Schedule of Tenderer’s Litigation History

Note to tenderer:

The tenderer shall list below details of any litigation with which the tenderer (including its directors, shareholders or other senior members in previous companies) has been involved with any organ of state or state department within the last ten years. The details must include the year, the litigating parties, the subject matter of the dispute, the value of any award or estimated award if the litigation is current and in whose favour the award, if any, was made.

Employer	Other litigating party	Dispute	Award value	Date resolved

SIGNED BY TENDERER:

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

2. Other documents required for tender evaluation purposes

Certificate of Attendance at Clarification Meeting

This is to certify that (Enterprise name)

of

(address).....

was represented by the person(s) named below

I have made myself familiar with all site conditions likely to influence the work and all aspects that could influence either the cost or the construction of the service.

I further certify that I am satisfied with the description of the work and explanations given at the meeting and that I understand perfectly the work to be done, as specified and implied, in the execution of this contract.

Particulars of person(s) attending the meeting

Name Signature

Capacity

Name Signature

Capacity

Attendance of the above person(s) at the meeting is confirmed by the Project Manager, namely

Name..... Signature

Capacity Date & Time

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

Certificate of Insurance Cover

Note to tenderer:

In the event of the tenderer being a joint venture/consortium, the details of the individual members must also be provided.

The tenderer shall provide the following details of this insurance cover:

- i) Name of Tenderer:
- ii) Period of Validity:
- iii) Value of Insurance:
 - Insurance for Works and Contractor's Equipment
 - Company:
 - Value:
 - Insurance for Contractor's Personnel
 - Company:
 - Value:
 - General public liability
 - Company:
 - Value:
 - SASRIA
 - Company:
 - Value:

SIGNED BY TENDERER:

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

Tax Compliance Status for Tenders

The tenderer is to affix to this page:

Bidders must submit their SARS TCS PIN number and CSD Supplier number with their bid in order that the bidder's Tax Compliance Status can be verified. Should a bidder not be Tax Compliant at the time of verification, the bidder will be notified in writing of their non-compliant tax status and be requested to remediate their tax status within seven (7) working days.

Failure to provide written proof of tax status remediation, within seven (7) working days of notification, will result in the rejection of the bid submitted by the Bidder.

Note:

This tax compliance status pin must still be valid on the award of this tender.

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

Form of Intent to Provide a Form of Guarantee

- 1 With reference to the tender of
 (hereinafter referred to as the “**TENDERER**” for the project
 (hereinafter referred to as
 the “**CONTRACT**” for the DEPARTMENT OF ROADS AND TRANSPORT of the Gauteng Provincial
 Government, (hereinafter referred to as the “**EMPLOYER**” for the tender dated
 for the offered total of prices of
 (R.....)
 (in
 words)
- 2 I/We in my/our capacity as
 and hereby
 representing
 (hereinafter referred to as the “**GUARANTOR**” advise that the “**GUARANTOR**”
 undertakes to provide a **Form of Guarantee** to the **EMPLOYER** to the Employer’s format included
 in Part C1.3 of this document within five (5) working days of the written acceptance of the contractor’s
 tender offer.

Thus done and signed at on

.....
Name of signatory

.....
Capacity of authorised signatory

.....
As witness

.....
*for and on behalf of the **Guarantor**
 who by signature hereof warrants
 authorisation hereto*

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

SBD 4

Bidder's Disclosure

1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. BIDDER'S DECLARATION

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest¹ in the enterprise, employed by the state? **YES/NO**

2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

1 the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

2 Joint Venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

- 3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;
- 3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium² will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.5 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 3.6 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.
- 3.7 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....

..... Signature

.....

Date

.....

..... Position

.....

Name of bidder

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

Tenderer's B-BBEE Verification Certificate

Notes to tenderer:

Guidance on valid B-BBEE Certificates and/or valid Sworn Affidavits to substantiate preference points claims.

- Valid B-BBEE Certificate issued by a SANAS accredited agency
- Bidders qualifying as EME/QSE can submit a valid Sworn Affidavit (DTIC) or B-BBEE Certificate issued by the Companies & Intellectual Property Commission (CIPC) on behalf of the DTIC, which serves as an Affidavit
- Any Consortium or JV must submit a valid consolidated B-BBEE Certificate issued by a SANAS accredited agency. No sworn affidavit will be accepted for a Consortium or JV
- The Department is requesting the B-BBEE credentials in order to validate and evaluate the points claimed by the Bidder based on the Specific Goals outlined in this tender document and the SBD 6.1.

NB: The submission of a fraudulent B-BBEE certificate will result in the bidder being disqualified and criminal proceedings being instituted against the bidder. The bidder, the shareholders and / or directors will further be restricted from doing business with any organ of the state for a maximum period of 10 years.

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

SBD

6.1

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and

1.2 To be completed by the organ of state

(delete whichever is not applicable for this tender).

- (a) The applicable preference point system for this tender is the 80/20 preference point system.

1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

- (a) Price; and
- (b) Specific Goals.

1.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80
SPECIFIC GOALS	20
Total points for Price and SPECIFIC GOALS	100

1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

- (a) “**tender**” means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;
- (b) “**price**” means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
- (c) “**rand value**” means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- (d) “**tender for income-generating contracts**” means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- (e) “**the Act**” means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

3.1.1 THE 80/20 PREFERENCE POINT SYSTEM

A maximum of 80 or 90 points is allocated for price on the following basis:

80/20

$$Ps = 80 \left(1 - \frac{Pt - Pmin}{Pmin} \right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.

Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)

The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (80/20 system) (To be completed by the tenderer)
HDI	1	
Woman	7	
Youth	5	
Disability	5	
Locality	2	

DECLARATION WITH REGARD TO COMPANY/FIRM

4.2. Name of company/firm.....

4.3. Company registration number:

4.4. TYPE OF COMPANY/ FIRM

- Partnership/Joint Venture / Consortium
- One-person business/sole propriety
- Close corporation
- Public Company
- Personal Liability Company
- (Pty) Limited
- Non-Profit Company
- State Owned Company

[TICK APPLICABLE BOX]

I, the undersigned, who is duly authorized to do so on behalf of the company/firm, certify that firm for the preference(s) shown and I acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
 - (a) disqualify the person from the tendering process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution, if deemed necessary.

..... SIGNATURE(S) OF TENDERER(S)
SURNAME AND NAME:
DATE:
ADDRESS:
.....
.....
.....

**PART A
INVITATION TO BID**

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (NAME OF DEPARTMENT/ PUBLIC ENTITY)					
BID NUMBER:	DRT 01/05/2026:	CLOSING DATE:		CLOSING TIME:	
DESCRIPTION	APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS				
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)					
Gauteng Roads and Transport, 45 Commissioner Street, Life Centre Building, Johannesburg					
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO			TECHNICAL ENQUIRIES MAY BE DIRECTED TO:		
CONTACT PERSON			CONTACT PERSON		
TELEPHONE NUMBER			TELEPHONE NUMBER		
FACSIMILE NUMBER			FACSIMILE NUMBER		
E-MAIL ADDRESS			E-MAIL ADDRESS		
SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR	CENTRAL SUPPLIER DATABASE No:	MAAA
2.1 ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES OFFERED?	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES ENCLOSE PROOF]	2.2 ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES OFFERED?		<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]	
QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS					
IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
DOES THE ENTITY HAVE A BRANCH IN THE RSA?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?			<input type="checkbox"/> YES <input type="checkbox"/> NO		
IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.					

**PART B
TERMS AND CONDITIONS FOR BIDDING**

1. BID SUBMISSION:
1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2. ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED (NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.
1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
1.4. THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).
2. TAX COMPLIANCE REQUIREMENTS
2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED; EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

SIGNATURE OF BIDDER:

CAPACITY UNDER WHICH THIS BID IS SIGNED:
(Proof of authority must be submitted e.g. company resolution)

DATE:

3. Returnable Schedules that will be used for tender evaluation purposes and be incorporated into the contract

Description of Foundation Requirements of WIM Sensors

The tenderer shall specify here below or attach to this form the requirements for the foundations of the WIM sensors to be supplied and installed for comprehensive traffic monitors

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SIGNED ON BEHALF OF THE TENDERER:

DATE:

Description of Comprehensive Traffic Monitors (WIM)

The tenderer shall specify here below or attach to this form the traffic monitoring equipment to be supplied and installed at comprehensive traffic monitor sites (weigh-in-motion stations):

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SIGNED ON BEHALF OF THE TENDERER:

DATE:

On-Line Data Transfer Service and Report Details

The tenderer shall specify here below or attach to this form his/her proposed method of providing the on-line service for permanent and comprehensive traffic monitors (WIM) and reports that will be generated by the CTM's.

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SIGNED ON BEHALF OF THE TENDERER:

DATE:

Specification of Software Program and Procedures for Validation of Traffic Surveying Data

The Tenderer shall specify here below the data validation software program utilised to validate the records obtained from utilising electronic equipment for traffic counting

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SIGNED ON BEHALF OF THE TENDERER:

DATE:

Tenderer's Ability and Capacity

The tenderer shall attach to this sheet the information requested below to demonstrate his/her ability to provide a continuous efficient service with the required support infrastructure and expertise readily available to prevent any unreasonable non-functioning of equipment for the total duration of the contract.

- a) Provide resume and qualification of project manager and key staff members indicating their normal location of office, involvement and availability for this contract.
- b) Previous completed Traffic Surveying contracts in the last three years for rendering of related services, specified per client, value and duration.
- c) Current contracts for rendering of related services specified per client, value and duration periods as well as any future commitments.
- d) Details regarding the support to be provided to maintain hardware and software.
- e) ***Provide proof that the total of electronic loggers that are available for this contract, are at least 57 loggers. Note that it will be expected from the successful tenderer to have at least 57 electronic loggers available at the START of the contract. Provide a list of all logger serial numbers.***
- f) ***The capacity to count 250 or more electronic stations per annum + capacity to count and monitor 30 permanent electronic stations per month + capacity to monitor 7 HSWIM electronic stations per month.***
- g) Indicate and provide proof of number of HSWIM plates available for this contract
- h) Local (RSA) and overseas expertise and the proportion of input to be provided by each.
- i) Quality management systems in place.

SIGNED ON BEHALF OF THE TENDERER:

DATE:

Details and Proof of Professional Traffic Engineers ECSA Registration and Total Years of Experience

The tenderer shall attach to this sheet the information requested below to provide all information on experience and qualifications of Traffic Engineers working on this project.

- a) Senior Traffic Engineer on this project for the Traffic Investigations and the Traffic Impact Studies:

NAME:

QUALIFICATIONS:

- b) Junior Traffic Engineer on this project for the Traffic Impact Studies.

NAME:

QUALIFICATIONS:

SIGNED ON BEHALF OF THE TENDERER:

DATE:

Staff and Management Structure

The tenderer shall specify here below or attach to this form his proposed organogram for the staff that will be involved with the execution of the construction, maintenance and operational functions.

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SIGNED ON BEHALF OF THE TENDERER:

DATE:

Compliance with Government Policies

Name of tenderer or partner of a joint venture:

.....
.....

Tenderers, including each partner of a joint venture, are requested to provide information demonstrating their commitment to Government's policies of growth, empowerment, affirmative action and redistribution of wealth here, or attach it to this page. A separate sheet should be used for each partner of a joint venture.

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SIGNED ON BEHALF OF THE TENDERER:

DATE:

Breakdown of Tender Price for Traffic Surveying Services Required

The tenderer shall attach a breakdown of the tender price (excluding VAT) to render the services required as outlined in PART ONE of tender document and summarise the totals here below.

BILL OF QUANTITIES

1. Specialised Surveying Services

No	Description of survey activity / service	Number of units per year	Tender price per unit per year	Total price per item per year	TOTAL FOR 3 YEARS
1.1	Bulk of manual counts done via turning movements on all intersections. Major intersections above 5 000 veh per day. (3 and 4 leg inclusive) Price is per intersection/T-junction	509 intersections			
1.2	Bulk of manual counts done via turning movements on all intersections. Minor intersections below 5 000 vhe per day. (3 legs and 4 legs inclusive) Note that the price are per intersection/T-junction	251 intersections			
1.3	Ad hoc turning movement, queues, and general surveys, (Major intersections: volumes above 5 000 veh p day) These for intersections not on provincial road network	10 intersections			
1.4	Ad hoc turning movement, queues surveys (Minor intersections: volumes under 5 000 veh p day) These for intersections not on provincial road network	10 intersections			
1.5	1-day E80 visual surveys (only manual counts)	10 intersections			
1.6	1-day E80 visual surveys, road sections	5 road sections			
1.7	7-day embedded loop recordings, intersections, annually at existing secondary stations	246 stations			
1.8	7-day embedded loop recordings, intersections, annually at new secondary stations	10			
1.9	7-day stick on inductive loop recordings (temp electronic counts)	20			
1.10	Permanent embedded loop recordings (minimum 90% of the time) at existing and future	30			

	stations (information transmitted continuously on demand to Department). Note that all data extraction, updating and verification of records are included in this item price				
1.11	CTM data (minimum 90% of the time) from existing CTM's.	12			
1.11.1	CTM data (minimum 90% of time) from the VIRTUAL STATION CTM.	2			
1.12	CTM data (minimum 90% of the time) with HAEWNI portable scales (temp station)	2			
1.13	Virtual Weigh Station where pricing is only for the information/overloading data with registration numbers report. (The WIM data to be claimed under BOQ point 1.11.1.) Needed per station point for one (1) direction with one lane is a camera, pole and one (1) sensor plate provided by tenderer. New construction for Virtual station claimed under BOQ point number 2.13.1	2 – only virtual data for two directions at one locations			
1.13.1	Possible Future Virtual Weigh Station where pricing is only for the information/overloading data with registration numbers report. (The WIM data to be claimed under BOQ point 1.11 t) A	2 – only virtual data for two directions at one location			
1.14	Lockable pipe caps at secondary counting stations	10			
1.15	Traffic investigations (priced for all ad-hoc investigation per year – see Part one)	-	R200 000	R200 000 (Provisional amount)	R600 000
	SUB TOTAL FOR 1				

SIGNATURE ON BEHALF OF THE TENDERER:

DATE:

2. Installation and Maintenance

No	Installation and Maintenance Activities	Number of units per year	Tender Price per unit per year	Total for units per year	TOTAL PRICE FOR 3 YEARS
2.1	Repair / replace feeders	20			
2.2	Repair/replace imbedded loops	20			
2.3	Repair/replace imbedded loops and feeders	10			

2.4	Repair/replace concrete block and feeders	10			
2.5	Complete installation of imbedded loops (2 lanes)	7			
2.6	Complete installation of imbedded loops (3 lanes)	7			
2.7	Complete installation of imbedded loops (4 lanes)	7			
2.8	Complete installation of imbedded loops (6 lanes)	7			
2.9	Complete installation of imbedded loops (4 lanes with centre median)	5			
2.10	Complete installation of imbedded loops (6 lanes with centre median)	5			
2.11	Complete installation of imbedded loops (8 lanes)	1			
2.12	Complete installation of imbedded loops (8 lanes with centre median)	1			
2.13	Complete construction of CTM. Note this is for construction at existing 6 locations of WIM sites and pricing per direction where sensor plates are provided by successful tenderer	12 directions			
2.13.1	Complete construction of CTM. Note this is for construction at existing 1 location for a new Virtual WIM site and pricing per direction where sensor plates as provided by successful tenderer.	2 directions			
2.14	Calibration of CTM's (twice per year)	12			
2.15	Remove WIM plate and reinstate pavement to standard	1			
Sub-Total for 2 =					

SIGNATURE ON BEHALF OF THE TENDERER:

DATE:

3. Information Management

No	Information Management Activity	Schedule	Tender price per year	Total price per year	TOTAL PRICE FOR 3 YEARS
3.1	Publication of annual reports	Annually	R	R	R
3.2	Drafting of ad-hoc reports	Ad-hoc	R	R	R
3.3	Maps		R	R	R
Sub-Total of 3 =					R

SIGNATURE ON BEHALF OF THE TENDERER:

DATE:

4. Traffic Impact Assessment Evaluation

No	Information Management Activity	Schedule	Tender price per year	TOTAL PRICE FOR 3 YEARS
4.1	Traffic Impact Assessments. A qualified (ECSA registered Traffic Engineer with at least 7 years for a senior in the field of Traffic Engineering and least 3 years of experience for a junior with a degree/national high diploma/B-Tech/BSc in Civil Engineering) person to provide in office service with technical support and evaluations of Traffic Impact Assessments. These persons will also be responsible for skills transfer. To be agreed upon at contract signing.	3 years	R 1 Million a year	R 3 Million
Sub-Total of 4 =				R

SIGNED ON BEHALF OF TENDERER:

DATE:

5. Summary of Services

No	Subtotals of Bill of Quantities	Total Tender Price for 3 years
1	Description of surveying service	
2	Installation and Maintenance Activities	
3	Information Management	
4	Traffic Impact Assessment	
5	VAT	
	GRAND TOTAL – VAT Included	

SIGNATURE ON BEHALF OF THE TENDERER:

DATE:

PART C1 : AGREEMENTS AND CONTRACT DATA

C1.1 FORMS OF OFFER AND ACCEPTANCE

C1.1.1 FORM OF OFFER

Head of Department
Department of Roads and Transport
Private Bag X83
Marshalltown
2107

TENDER NUMBER: DRT 01/05/2026: APPOINTMENT OF A SERVICE PROVIDER TO PERFORM SPECIALIZED TRAFFIC SURVEYING ON PROVINCIAL ROADS IN GAUTENG PROVINCE FOR A PERIOD OF (3) THREE YEARS

I/we, by signing this part of the forms of offer and acceptance, confirm that I/we practise the principles of corporate governance that abhors corruption and fraud and that I/we have examined the documents listed in the tender data and addenda thereto as listed in the returnable schedules and am/are duly authorised to represent and commit the tenderer to the contractual obligations contained therein.

I/we further confirm that by submitting this offer the tenderer accepts the conditions of tender and offers to perform all of the obligations and liabilities of the contractor under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the conditions of tender and the conditions of contract identified in the contract data.

THE OFFERED TOTAL OF THE PRICES (INCLUSIVE OF VALUE ADDED TAX) IS;

.....
.....(in words)
(R in figures)

You may accept this offer by signing and returning to the tenderer one copy of the Form of acceptance before the end of the period of validity stated in the tender data, (or at the end of any agreed extension thereof), whereupon the tenderer becomes the party named as the contractor in the conditions of contract identified in the contract data.

Notwithstanding anything contained in a covering letter to this tender, I/we declare this offer is submitted entirely without variations or deviations other than those stipulated in the form for Proposed Amendments and Qualifications by the tenderer and that it is made free from any fraud, corruption and misrepresentation.

Yours faithfully

SIGNATURE:..... DATE:

NAME (IN CAPITALS):

CAPACITY:

Date and minute reference of Board resolution if different from returnable document: Certificate of Authority

Certificate of Authority for signature

NAME AND ADDRESS OF ORGANISATION:

.....

C1.2 FORMS OF AGREEMENT

THIS AGREEMENT made at

on this the day of 2019

between Gauteng Department of Roads and Transport, Directorate Traffic Engineering and Infrastructure Protection (hereinafter called "the Department") of the one part, herein represented by

.....

in his capacity as

and

(hereinafter called "the successful tenderer") of the other part, herein represented by

.....

in his capacity as

WHEREAS the Department is desirous that certain works be executed, viz CONTRACT No. _____: Rendering of Traffic Surveying Services for The Department

and has accepted a tender by the Department for the supply, installation, construction, completion, maintenance and operation of such works as well as the subsequent supply of traffic data;

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. The Department shall execute and complete the work in accordance with the contract documents which documents shall be deemed to form and be read and construed as part of this agreement.
2. The time period for the agreement is 36 months commencing within 14 days from the date of awarding of the contract.
3. The Department may employ skilled and semi-skilled or unskilled labour on the works, according to the nature of the requirements, but in conformity with recognised current practice in the Republic of South Africa, and in particular in the area of the works.
4. In consideration of the payments to be made by the Department to the successful tenderer as mentioned hereinafter, the successful tenderer hereby covenants with the employer to supply, construct, complete, maintain and operate the works as well as to supply the specified traffic data so as to conform in all respects with the provisions of the contract.
5. The Department hereby covenants to pay to the successful tenderer in consideration of the supply, construction, completion and maintenance of the equipment as well as the supply of traffic data and maintenance of the database as specified at the times and in the manner prescribed by the contract. The amount to be paid by the Department to the successful tenderer for the due and faithful execution of the contract shall be a sum to be determined from the quantities of work actually carried out at the rates and sums shown in the priced schedule of quantities and at the rates and sums shown in the priced schedule of quantities extended by the formulae as specified for the operational stage. Monthly payment certificates will have to be submitted for payment by the successful tenderer to the

Department. Remuneration for Information Management will be payable in twelve equal monthly instalments.

All prices are subject to annual price escalation based on the National PPI (producer price index) as published by the National Statistical Services.

6. The law of the Republic of South Africa shall govern this contract and the contractor chooses his address for the purpose of serving notices and summonses in the Republic at (full address of this place)

In witness whereof, the parties hereto have set their signatures and seals (if any) hereon in the presence of the subscribing witnesses:

1. DEPARTMENT

Signed by

in his capacity as

on this the day of 2025

in the presence of the undersigned witnesses.

FOR THE DEPARTMENT:

AS WITNESSES : 1. Name: :

2. Name: :

2. SUCCESSFUL TENDERER

Signed by

in his capacity as

on this the day of 2025

in the presence of the undersigned witnesses.

FOR THE CONTRACTOR :.....

AS WITNESSES : 1. Name: :

2. Name: :

PART C2 : SCOPE OF WORK



GAUTENG PROVINCE
ROADS AND TRANSPORT
REPUBLIC OF SOUTH AFRICA

TENDER NO: DRT 01/05/2026
**TENDER FOR THE RENDERING OF SPECIALIZED
TRAFFIC SURVEYING SERVICE FOR THE
GAUTENG DEPARTMENT OF ROADS AND
TRANSPORT**

SCOPE OF SERVICES TO BE RENDERED

RENDERING OF TRAFFIC SURVEYING SERVICES FOR THE GAUTENG DEPARTMENT OF ROADS AND TRANSPORT

PART ONE: SCOPE OF SERVICES TO BE RENDERED

CONTENTS

1. INTRODUCTION
 2. SCOPE OF SERVICES TO BE RENDERED
 3. QUANTITIES OF SERVICES TO BE RENDERED
-
- ANNEXURE A: Location of Existing Secondary Stations
- ANNEXURE B: Specification for the Supply and Installation of Inductive Loops on Roads for Traffic Surveys
- ANNEXURE C: Location of Permanent Traffic Counting Stations
- ANNEXURE D: Specifications for Supply, Installation, and Commissioning of Comprehensive Traffic Monitors (CTM / HWIM's)
- ANNEXURE E: Assessment Criteria
- ANNEXURE F: Specification for Pavement Patching and Repairing
- ANNEXURE G: Locations of Manual Nodes for Gauteng Province on all Provincial Roads

RENDERING OF SPECIALIZED TRAFFIC SURVEYING SERVICES FOR THE DEPARTMENT OF PUBLIC TRANSPORT, ROADS AND WORKS

1. INTRODUCTION

The Directorate: Traffic Engineering and Services of the Department of Roads and Transport (Department) has decided to outsource the traffic surveying services rendered by the Overload Management section of the Directorate.

The Department will make the existing inductive loops at approximately 250 secondary stations in Gauteng available to the successful tenderer for traffic counting and hold him responsible for the maintenance thereof. The successful tenderer will also be expected to install and maintain inductive loops and equipment at new secondary, permanent stations and Comprehensive Traffic Monitor stations (CTM's), to conduct traffic surveying at these stations and to conduct hand counts at designated locations and submit verified traffic information in electronic and printed format for the duration of the contract period of 3 years.

2. SCOPE OF WORK TO BE OUTSOURCED

THE DEPARTMENT WILL OUTSOURCE THE FOLLOWING TRAFFIC INFORMATION SERVICES TO THE SUCCESSFUL TENDERER:

- Turning movements and general surveys at all intersections on the Provincial Gauteng road network. This at all intersections/T junctions and some with local municipalities roads. Lists are provided at back of this document. The pricing to be done per intersection or T-junction. The list provided done as per last cycle of counts in 2024. Some new stations may need to be added for new roads etc. counts to be done 1once per year at all stations. This includes paved and gravel roads.
- 12-hour manual counts on designated intersections and roads (3 legs and 4 legs inclusive) at specific intersections per year as needed. This includes paved and gravel roads.
- Ad hoc turning movement, queues and general surveys, (3 personnel, 3 hours + 3 hours, various locations – 20 intersections per year.
- Ad hoc turning movement, queues surveys (6 personnel, 3 hours + 3 hours, various locations).
- 1-day E80 visual surveys (only manual counts)
- 1-day E80 visual surveys, road sections. (manual counts)
- 7-day embedded loop recordings, intersections, annually at **existing** secondary stations. Locations of some stations may need to move sometimes.
- 7-day embedded loop recordings, intersections, annually at **new** secondary stations
- 7-day stick on inductive loop recordings (temp electronic counts).
- Permanent embedded loop recordings (minimum 90% of the time) at existing and future stations (information transmitted continuously on demand to Department). The locations may have to be moved from time to time for a few of these stations.
- CTM data (minimum 90% of the time) from existing CTM's. For this tender WIM data will be needed at 6 locations and pricing will be per direction, 12 in total. The tender price for this item is only for the data and the construction of the CTM can be claimed under installation and maintenance. All equipment and sensor plates to be provided by successful tenderer. It may be necessary to move one of two of these stations over the three-year cycle.



- The pricing for WIM data from the Virtual station will be separate from the tender pricing for the data/spreadsheets/outputs of the overloading data captured by the Virtual station's cameras.
- CTM data (minimum 90% of the time) with HAEWNI or similar portable scales (temp station). The successful tenderer will only provide the data to the department.
- Currently there are one Virtual station and pricing is only for the data/spreadsheet/outputs of the overloading data captured by the cameras. The WIM data will be claimed under different item specific provided and the construction under the Installation and Maintenance items. Sensors will be provided by the successful tenderer but if a second Virtual station needed, an existing WIM station location will be used.
- Traffic impact assessments evaluations. the evaluations of traffic impact assessments and skills transfer. Provision must be made to do Traffic assessments evaluations by providing technical support to the Department. This includes the provision of a Junior Engineer/Technician with at least 3 years' experience and a Senior Engineer with at least 7 years' experience in the field of Traffic Engineering and registered with ECSA. It will be expected from the successful tenderer to make an engineer/technician available to the department for a xxx hours per week. The Engineer will work closely with the TIA unit, aid with the evaluations, training to juniors and any other assistance related to the evaluations.
- Traffic investigations will be priced by providing a quotation of the study beforehand. These investigations can be on a network of road sections, intersections, and T-junctions. Typically needed is a site visit, to study the traffic movements and reporting on hazardous locations by providing possible solutions. This must be in accordance with the Departments policies and standards.

TRAFFIC SURVEYING AT EXISTING SECONDARY STATIONS

- a) The successful tenderer is expected to utilise its own electronic recording equipment (loggers) to annually extract data from approximately 250 existing secondary stations in Gauteng over a period of 168 hours (7 days) and over a 14-day period at designated locations. (**See Annexure A: List of Secondary Stations**).
- b) Traffic counts should be recorded during normal season periods when traffic is unaffected by abnormal events such as school and public holidays. The successful tenderer will submit a monthly program of surveying *activities with expected cash flow*, to the Department before the start date of the month. The successful tenderer must update the database at least once per month. No surveys shall be conducted during weekends except for surveys with duration of more than 5 days or when specifically requested to do a weekend survey by the department.
- c) The successful tenderer is expected to validate the data by applying an appropriate and reliable software package of their choice and to transfer the verified data to a central database to be established and maintained by the successful tenderer.
- d) The successful tenderer is expected to publish standardised, 3-monthly and annual traffic surveying reports that should contain verified, comparable information per secondary stations and permanent stations.
- e) The successful tenderer is expected to produce ad hoc reports as may be required by the Department from time to time.
- f) If the counting station has to be repaired prior to commencement of the 7-day count, *the contractor will immediately implement a 7-day count after completion of the repair*.

TRAFFIC COUNTING AT NEW SECONDARY STATIONS

- a) The Department will expect the successful tenderer to install and maintain new electronic loops at additional locations in Gauteng as may be required and specified from time to time.
- b) The specifications for the supply and installation of inductive loops on roads for traffic surveys are outlined in **Annexure B: Specifications for Supply and installation of Inductive Loops**.
- c) After completion of the new secondary station the contractor will immediately implement a 7-day count and on completion update the database accordingly.



- d) Note that currently and for the past few years approximately 30 of the approximately 246 secondary stations have been monitored by SANRAL. The data will be provided by SANRAL and needs to be included in all reports.

TRAFFIC COUNTING AT FUTURE PERMANENT TRAFFIC COUNTING STATIONS

- a) The Department **can** decide to upgrade several secondary traffic counting stations to permanent stations, which will enable the Department to have ongoing access to accurate and representative traffic survey data at designated locations on important main and alternative routes in Gauteng as outlined in **Annexure C: Location Permanent Counting Stations**.
- b) It will be expected of the successful tenderer to utilise equipment that will transfer data electronically between the permanent station and the traffic survey database for verification and updating of records on the database.

TRAFFIC COUNTING WITH COMPREHENSIVE TRAFFIC MONITORS

- a) The Department will expect the successful tenderer to install, maintain and operate several Comprehensive Traffic Monitors (CTM's) that will enable the Department to also conduct weigh-in-motion surveys at designated locations on main and alternative routes in Gauteng.

It is the responsibility of the successful tenderer to reinstate all WIM stations in the time limit provided. It will be expected from the successful tenderer to reinstate at least one (1) WIM stations within the first two months from start of the new contract. Reinstate at least two (2) more stations within four (4) months of start of the new contract. The last four (4) WIM's must be installed within six (6) months from the start of the new contract. See Annexure D.

The frames and sensors will be provided by the successful tenderer.

- b) The specification for the supply, installation, and operation of the CTM's is outlined in **Annexure D: Specification for supply and installation of CTM's**.
- c) The Department will expect the successful tenderer to provide and operate portable scales to do temporarily weigh surveys at specific ad-hoc locations. The successful tenderer needs to provide the portable scales. The Department is only interested in the data.

It will be the responsibility of the service provider to do the traffic accommodation and liaise with law enforcement authorities.

TRAFFIC SURVEYING THROUGH MANUAL COUNTS

- a) **Manual counts on all Provincial roads**

The Department requires from the successful tenderer to conduct manual counts on all paved and gravel roads **once per year** during the contract period of 3 years. **See Annexure G**. These manual counts at designated intersections must be counted on a weekday between 06:00 and 18:00. The total traffic (both ways) must be recorded showing light vehicles, heavy vehicles, minibus taxis, buses and total vehicles separately. All intersections will be counted with turn movements.

- b) **Manual counts on ad hoc locations**

The Department requires from the successful tenderer to conduct manual counts on ad hoc locations on an ongoing basis. These manual counts at designated intersections must be counted on a weekday between 06:00 and 18:00. The total traffic (both ways) must be recorded showing light vehicles, heavy vehicles, minibus taxis, buses and total vehicles separately **and** when requested also reflect **four categories of occupancy levels (empty, quarter, half three quarter and full)**.

PNEUMATIC PIPE RECORDINGS

The Department will not request pneumatic pipe recordings.

EMBEDDED LOOP RECORDINGS (ELECTRONIC)

The Department requires from the successful tenderer to conduct 7-day electronic recordings utilising the inductive loop technology at designated locations annually as part of the maintenance of the Gauteng Traffic Data Base.

Temporarily recording of at least 7 days can also be requested by using temporarily inductive stick-on loops at different locations.

E80 SURVEYS

E80 Surveys must be done in accordance with the Draft TRH16: 1991 at locations to be specified by the Department.

SERVICING AND MAINTENANCE OF TRAFFIC INFORMATION DATA BASE AND PUBLICATIONS

The Department requires from the successful tenderer to render the following database and publication services:

- a) Verify all data by means of special software package before capturing of data in the database
- b) Calculating provincial traffic growth based on a standard set of values obtained during previous years.
- c) Correlating E80 figures obtained with information obtained from CTM's
- d) Providing information obtained from electronic loops in standardised format outlined in Annexure F
- e) Maintain and update the data of the Departmental database
- f) Quarterly publication of information obtained from survey data in hard copy and electronic (CD) format.
- g) Publication of a comprehensive annual report, in hard copy and electronic (CD) format.

3.11 TRAFFIC INVESTIGATIONS

The Department requires from the successful tenderer to do traffic investigations related to the appropriate traffic control measures and possible roads safety improvements on an ad-hoc-basis. These investigations will include surveys, inspections and the drafting of reports by a qualified person (registered with ECSA with at least 7 years' experience in the traffic engineering discipline) on provincial roads and intersections.

Investigations will include site visits, sometimes more than one and short reports for possible solutions. Quotations will be requested before these investigations are approved. Tariffs are claimed according to the latest ECSA's tariffs.

3.12 TRAFFIC IMPACT ASSESMENTS

The successful tenderer will have to assist officials from the Department in the evaluation of traffic impact assessments by providing technical support and training.

The technical support will be on a time and cost basis in response to specific Traffic Impact studies. The successful tenderer needs to ensure the service of a qualified engineer/technician leading the team (ECSA registered with at least 7 years' experience in Traffic Engineering discipline and specifically Traffic impact studies). Training must be provided on an ongoing process and specific courses related to Traffic Engineer can also be provided.

3.13 VIRTUAL WEIGH STATIONS

The successful tenderer will need to provide overload data to the Department to monitor heavy vehicles.

The system should be able to weigh vehicles in motion travelling normal speeds along a roadway. It should also be able to classify vehicles based on weight and axle spacing and determine when vehicles are in violation of regulations, specifically overloading. The system should be able to provide a display of these records on a network connected device. Data collected must be made available to the Department quarterly via a normal excel



spreadsheet with details of the vehicles, date of occurrence, registration number, photo of this registration number, the specific reason for capturing this vehicle as overloaded and if possible, a side view photo of the vehicle.

The Virtual Station sensors plates will be provided by the successful tenderer. Note that normal Weigh-In-Motion data must still also be provided and be claimed under the correct bill of quantity item number. Currently existing is one Virtual station where both directions are monitored for WIM data and overloading. It may be necessary to add another Virtual Station to the list. This will be done by using one of the other existing 7 WIM stations. For the set up a second Virtual Station an item number has been added to the bill of quantity list for providing the extra camera, pole and eventually the overloading data output.

3.14 DATA FORMAT

THE DATA IS FORMATTED IN COMMA-DELIMITED FORMAT (CSV), WITH EACH VEHICLE RECORD REPRESENTED ON A SEPARATE LINE AND INDIVIDUAL FIELDS SEPARATED BY COMMAS, AIMING PRIMARILY TO OPTIMISE FILE SIZE WHEN COLLECTING VEHICLE DATA.

FURTHERMORE, NOTE THAT THE FILE TYPE 'RSV' IS USED TO INDICATE DATA COLLECTED ACCORDING TO THE COMMA DELIMITED FORMAT OF VERSION 3 (REFER TO "TMH14 - SOUTH AFRICAN STANDARD TRAFFIC DATA COLLECTION FORMAT" FOR MORE INFORMATION).

THE FILES SHOULD BE NAMED ACCORDING TO THE FOLLOWING CONVENTION: "SITEID-YYYYMMDD.RSV", WHERE "SITEID" IS THE SITE IDENTIFIER AND "YYYYMMDD" REPRESENTS THE DATE IN THE FORMAT YEAR-MONTH-DAY OF THE LAST DAY COUNTED. SITEID IS PRECISELY 4 CHARACTERS LONG, WITH LEADING

ZEROS ADDED IF IT IS LESS THAN 4 CHARACTERS IN LENGTH. SPECIFYING THE LOCATION OF THE STATION IS NECESSARY TO ESTABLISH SPATIAL LINKAGE.

EXAMPLE OF RSV FILE FORMAT

```
H0,1,320,3,RSA Standard Data Format Version 3.20
S0,0087,0087,Alberton WIM (BL),-26.29478,28.10606
I0,00001,RT8000 Fam 050310ME
D0,M,L
D1,240101,0000000,240131,2400000,231120,1108000
L0,4,4,2
L1,1,0,P,1,1,0,1,1,1,1,0,1,1,1,1,0,C1,2,L5,H5
L1,2,0,P,1,2,0,1,1,1,1,0,1,0,0,0,0,C1,0,L0,H0
L1,3,4,P,2,2,0,1,1,1,1,0,1,0,0,0,0,C1,0,L0,H0
L1,4,4,P,2,1,0,1,1,1,1,0,1,1,1,1,0,C1,2,L5,H5
10,08,05,3000,20
H9
C0,1,VD
10,15,1,0,240101,0000110,3,3,1,10,2,1,146,480,,1,2
QC,2,240101,0000157,1,1,W1,1.01598
10,18,1,0,240101,0000157,1,1,1,12,2,1,98,420,,3,1,,0,2,S0,1,252,W1,2,,972,718
QC,2,240101,0000201,4,1,W1,0.97931
10,18,1,0,240101,0008093,1,1,1,12,2,1,100,480,,1,1,,0,2,S0,1,297,W1,2,,1112,1155
10,18,1,0,240101,0008195,1,1,1,23,5,2,65,500,,1,1,,0,2,S0,1,321,W1,2,,1281,1155
10,18,1,0,240101,0008275,1,1,1,12,2,1,88,440,,3,1,,0,2,S0,1,264,W1,2,,1014,774
10,15,1,0,240101,0008379,2,2,1,10,2,1,100,620,,3,1
10,18,1,0,240101,0008381,1,1,1,12,2,1,94,380,,3,1,,0,1,S0,0,W1,1,,718
10,18,1,0,240101,0008490,4,4,1,12,2,1,103,440,,2,1,,0,2,S0,1,269,W1,2,,1010,734
```

THE DATA FILES CONSIST OF HEADER AND DATA BLOCKS. HEADER DATA BLOCKS CONTAIN HEADER DATA RECORDS AND TRAFFIC DATA BLOCKS THE TRAFFIC DATA RECORDS.

FOR ADDITIONAL INFORMATION ON CODES ABOVE PLEASE REFER TO TMH 14.



3. QUANTITIES OF SERVICES TO BE RENDERED

See bill of quantity

PART C3: ANNEXURES

ANNEXURE A

**LOCATION OF EXISTING
SECONDARY STATIONS
(Electronic loops presently installed)**

SECONDARY STATIONS - SORTED BY STATION ID									
Site ID	Site Name	Site Type	Route	Section	Distance	Road	Longitude	Latitude	Physical Lanes
0001	Kameeldrift East	Secondary	R513	5	1,3	P002	28,295192	-25,685125	5
0002	Pumulani	Secondary	R573		1,6	D1386	28,290780	-25,681700	4
0003	Zambesi Dr East	Secondary	R513	5	0,6	P002	28,289190	-25,685800	4
0004	Derdepoort	Secondary	M015		0,9	D1386	28,293170	-25,687710	4
0005	Monavoni	Secondary	R114	1	7,3	P102	28,092520	-25,882140	2
0010	Bon Accord GP	Secondary	R101	3	12,8	P001	28,194580	-25,646920	2
0011	Lavender Rd	Secondary	R101	3	11,1	P001	28,191750	-25,662610	4
0012	K8 Onderstepoort	Secondary	R566		0,85	K008	28,183570	-25,657380	4
0014	K8 Onderstepoort Wes	Secondary	R566		2,5	K008	28,169000	-25,653460	2
0015	K8 Klerksoord	Secondary	R566		8,3	K008	28,114620	-25,629950	4
0016	K8 Rosslynn GP	Secondary	R566		9,2	K008	28,100040	-25,627570	6
0018	R80 Orchards	Secondary	R080	1	7,3	P200	28,111940	-25,641990	4
0019	Clarina GP	Secondary	R513	1	4,65	P106	28,120195	-25,674612	4
0020	Wonderpark GP	Secondary	R513	1	5,3	P106	28,114190	-25,675320	4
0021	Mountain View	Secondary	R080	1	1,7	P159	28,158740	-25,705080	4
0023	Rosslyn North	Secondary	Doreen Ave		5	D0031	28,077940	-25,595160	4
0024	Rosslyn West	Secondary	R566		13	K008	28,069944	-25,624140	5
0025	Laudium North	Secondary	R055	1	7,2	P039	28,109056	-25,796112	4
0026	Erasmia	Secondary	M026	1	8,6	P039	28,100400	-25,807540	2
0027	Zwartkops Raceway	Secondary	R055	1	0,8	P066	28,111842	-25,805170	4



0030	Idelwinds	Secondary	M026	1	21,4	P039	28,027600	-25,884840	2
0031	Gerhardville AH West	Secondary	R114	1	25	P039	28,018290	-25,915550	2
0033	Doornrandjies	Secondary	R511	1	1,48	P249	28,018830	-25,878180	3
0034	Gerhardville AH East	Secondary	M034	1	0,4	P102	28,030722	-25,904972	2
0035	Diepsloot East	Secondary	N014	2	14,6	P158	28,061670	-25,902660	4
0036	Diepsloot West	Secondary	N014	2	18,8	P158	27,993416	-25,930529	4
0037	Timsrand AH	Secondary	R562		1,2	D0795	28,029540	-25,916280	3
0038	Lion Park	Secondary	R512	2	1,2	P103	27,924749	-25,987194	4
0039	Nooitgedacht SH	Secondary	R512	2	1,95	P103	27,925230	-25,978080	6
0040	R28 Lanseria	Secondary	N014	2	29,25	P158	27,914780	-25,990710	6
0042	Poortview AH West	Secondary	N014	1	20,6	P126	27,801930	-26,047140	3
0046	Tarlton East	Secondary	N014	1	35,6	P126	27,663500	-26,071806	2
0047	Tarlton West	Secondary	N014	1	0,35	P028	27,644830	-26,077610	2
0049	Strubensvallei West	Secondary	R564	1	3,8	P139	27,906760	-26,129040	5
0050	Allens Nek South	Secondary	M047	1	5,6	P126	27,913334	-26,131860	6
0051	Strubensvallei	Secondary	M047	1	6,8	P126	27,903350	-26,122820	5
0052	Sundowner	Secondary	R564	1	10,1	P139	27,933340	-26,079020	4
0053	Randparkrif West	Secondary	R564	1	8,6	P139	27,930340	-26,084760	4
0054	Honeydew North	Secondary	M005		4,7	D0374	27,929680	-26,079980	4
0055	Magaliessig	Secondary	R564	1	22,3	P070	28,022610	-26,026370	4
0056	Craigavon AH	Secondary	R564	1	19,8	P070	27,999040	-26,022600	4
0057	Fourways Gardens	Secondary	R552		1,8	D1027	27,996389	-26,012220	4
0058	Dainfern	Secondary	R511	1	3,1	P079	28,016056	-25,974361	2
0059	Kyalami South	Secondary	R055	1	23,4	P066	28,089670	-26,025390	4
0060	Vorna Valley	Secondary	M039		14,6	D0051	28,101250	-26,008800	4
0061	Rhenosterspruit	Secondary	R512	2	16	P103	27,882139	-25,863167	2
0063	Randjesfontein North	Secondary	R101	2	25,05	P001	28,144990	-25,941150	3



0064	Randjesfontein South	Secondary	R101	2	25,5	P001	28,143320	-25,944940	3
0066	Homer	Secondary	R028	1	4,2	P088	27,902920	-26,671400	4
0070	Westonaria North	Secondary	R028		7,4	P045-01	27,680790	-26,273210	4
0074	Protea Glen North	Secondary	R558		18	D0524	27,815480	-26,289320	4
0075	Protea Glen South	Secondary	N012	6	90	P003	27,830770	-26,295270	5
0076	Protea Glen West	Secondary	R559	1	15	P241	27,808200	-26,290140	2
0077	Eldorado Park	Secondary	N012	1	10	P186	27,935888	-26,304251	4
0078	Eldorado Est South	Secondary	R553	1	49,8	P073	27,901660	-26,339600	4
0079	Eldorado Est North	Secondary	R553	1	54,1	P073	27,921560	-26,305760	4
0081	Kibler Park North	Secondary	R082	1	41,3	P001	27,991030	-26,319300	4
0082	Wyman Park	Secondary	R082	1	40,8	P001	27,987910	-26,322760	4
0084	Kibler Park East	Secondary	R554	1	1	P069	27,999470	-26,324110	4
0087	Alberton WIM (BL)	Secondary	R059	1	6,4	P156	28,108360	-26,298420	4
0088	R556 Brackendowns	Secondary	R556	1	3	P072	28,093800	-26,348950	4
0091	East Daggafontein	Secondary	N017	1		P109-01	28,516750	-26,276120	2
0093	Buhle Park	Secondary	R554	1	1,2	P058	28,201280	-26,297090	4
0094	Leondale GP	Secondary	R103	1	5,3	P004	28,191380	-26,303800	5
0096	Dalpark North	Secondary	R023	2	8,8	P006	28,321490	-26,245600	4
0098	Van Dyk Park	Secondary	R554	1	10,4	P058	28,288740	-26,269420	4
0101	ORT Spartan	Secondary	R024	1	7,6	P119	28,205080	-26,130900	6
0107	Zuurfontein Ave	Secondary	M039		1,6	D0051	28,189917	-26,083723	6
0109	Esther Park	Secondary	R025	1	11,6	P091	28,186450	-26,091330	4
0110	Alan Manor	Secondary	R082	1	46,1	P001	27,987217	-26,279350	4
0111	Heidelberg Rd	Secondary	R103	1	0,5	P004	28,148800	-26,293000	4
0112	Azaadville	Secondary	R041		6	K198	27,741362	-26,182520	2
0113	Aeroton	Secondary	R553	1	63	P073	27,983973	-26,258638	4
0114	South Crest	Secondary	R059	1	1,7	P156	28,098950	-26,254400	4



0115	Finetown	Secondary	R557	1	34,5	P162	27,864970	-26,409410	2
0116	Staalrus AH	Secondary	R057	1	2,9	P155	27,820490	-26,726250	4
0117	Loch Vaal	Secondary	R042	3	12	P156	27,687120	-26,743760	2
0118	R59 Vaal River	Secondary	R059	1	1,5	P202	27,899440	-26,706090	4
0119	Meydustria	Secondary	R059	2	21	P156	27,994610	-26,584350	4
0120	Devon	Secondary	N017	1	45,1	P109	28,896000	-26,401300	2
0121	Carletonville	Secondary	R501	1	55,1	P089	27,226120	-26,419070	2
0122	Klerkskraal	Secondary	N014	1	29	P028	27,402980	-26,199860	2
0124	Magaliesburg South	Secondary	R024	1	23	P016	27,587639	-26,021111	2
0125	Everton West	Secondary	R028	1	14,3	P088	27,803300	-26,528560	2
0126	Balmoral GP	Secondary	R104	2	1,3	P154	28,758560	-25,806800	2
0128	Old Pta Rd South	Secondary	R101		1	K101	28,120240	-26,020900	4
0130	Haakdoorn	Secondary	M035		11,1	D0318	28,152140	-25,566320	2
0132	R513 Mahube Valley	Secondary	R513	5	14	P002	28,424140	-25,683350	2
0134	Daveyton East	Secondary			1,2	D1188	28,450220	-26,140800	2
0135	Three Rivers	Secondary	R054		2	D0083	28,019320	-26,660930	2
0136	D905 Weilbach Rd	Secondary	R551		2,8	D0905	27,948360	-26,535418	2
0137	Sebokeng	Secondary	R553	1	18,6	P073	27,819350	-26,598480	4
0140	Mabopane (CH)	Secondary	R080	1	11	P200	28,112379	-25,616331	4
0142	Snake Valley	Secondary	N014	1	5,2	P158	28,180317	-25,800292	6
0144	R28 Rooihuiskraal	Secondary	N014	2	1,1	P158	28,159111	-25,882305	4
0145	Donkerhoek	Secondary	N004	2	6,8	N004	28,478750	-25,782020	4
0146	Welbekend	Secondary	M030		2,4	D0321	28,454920	-25,938180	2
0148	Klipview AH	Secondary	R059	2	3,1	P156	28,072950	-26,444990	4
0149	Walkerville South	Secondary	R082	1	29,5	P001	27,957200	-26,416640	2
0150	Westonaria East	Secondary	N012	6	75,2	P003	27,689590	-26,336360	4
0152	Carletonville East	Secondary	R501	1	12,6	P111	27,482080	-26,360250	4



0153	Oberholzer	Secondary	R500	3	1	P061	27,384960	-26,328660	2
0154	Moorivierloop	Secondary	R559	1	21	P089	27,532910	-26,307400	2
0155	Klerkskraal North	Secondary	R500		1	D1215	27,440730	-26,177100	2
0156	Brandvlei North	Secondary			1	D0400	27,587805	-26,124360	2
0157	Wolfelea AH	Secondary	R024	1	14,4	P016	27,645000	-26,070250	2
0158	Mount Grace	Secondary	R024	1	29	P016	27,543370	-25,993820	3
0159	R563 Hekpoort	Secondary	R063	1	21,8	P074	27,614070	-25,901940	2
0160	R560 Hekpoort	Secondary	R560	1	31,6	P123	27,613472	-25,885166	2
0162	Leeuwkop	Secondary	M071	1	5,8	P071	28,052250	-25,989027	4
0163	Kyalami	Secondary	R055	1	22,6	P066	28,076280	-25,993500	4
0164	Crowthorne	Secondary	R055	1	20,2	P066	28,079420	-25,972430	2
0165	Noordwyk	Secondary	R562		10	D0795	28,107100	-25,944200	4
0166	St Georges Hotel	Secondary	M005	1	8,2	P122	28,248990	-25,893900	4
0167	Clayville East	Secondary	M005	1	0,1	P122	28,243880	-25,970800	4
0168	Training College	Secondary	M057	1	23,6	P038	28,244417	-25,975779	2
0170	Soshanguve	Secondary	M035		16,4	D0318	28,127710	-25,526340	2
0171	Nellmapius	Secondary	R104	1	18,7	P154	28,357910	-25,747480	2
0172	Wapadrand	Secondary	M010		4,2	K069	28,340389	-25,780527	4
0173	Bapsfontein West	Secondary	R025	2	14,2	P091	28,393800	-26,003520	2
0174	Endicott South	Secondary	R042	1	24	P101	28,583111	-26,324410	2
0175	Grootvlei	Secondary		1	33	P243	28,379169	-26,741024	2
0176	Heidelberg West GP	Secondary	R042	1	34,85	P025	28,209278	-26,555020	2
0177	Brandvlei	Secondary	N014	1	12	P028	27,562910	-26,149820	2
0178	Josephskroon	Secondary	R023	2	13	P004	28,429991	-26,579885	2
0179	Overkruin	Secondary	R023	1	31,5	P004	28,352528	-26,478500	3
0180	Klipspruit West	Secondary	R558	1	14,2	P219	27,872640	-26,301140	4
0183	Barkerton	Secondary	R555	1	19,3	P029	28,470320	-26,220590	2

0184	Atlas Rd South	Secondary	M043			K157	28,280460	-26,178000	4
0185	Atlas Rd Clearwater	Secondary	M043			K157	28,273440	-26,151410	4
0186	Atlas Rd Airport	Secondary	M043			K157	28,254889	-26,109056	5
0187	Lanseria South	Secondary	R512	2	5,8	P103	27,911820	-25,950040	4
0188	Lanseria North	Secondary	R512	2	6,8	P103	27,906300	-25,936300	2
0190	Eden Park	Secondary	M061	1	19,3	P046	28,096910	-26,382710	2
0201	Waterkloof Air Base	Secondary	R021	1	0,8	P157	28,238832	-25,820417	4
0220	Edleen	Secondary	M039			Zuurfont Rd	28,194660	-26,097810	4
0221	Halfway House	Secondary	M039		12,6	D0051	28,120700	-26,017910	5
0222	Junction Hill	Secondary	R554	1	2,2	P004	28,160230	-26,290700	4
0223	Erasmuskloof	Secondary	R050		1,35	K151	28,261670	-25,818820	4
0224	K69 Erasmuskloof	Secondary	M010		13,6	K069	28,264240	-25,821450	4
0225	Fourways	Secondary	R564	1	10,1	P070	28,005194	-26,021029	4
0226	Brecknock AH	Secondary	M071	1	0,3	P071	28,026690	-26,034300	4
0227	Truvelo	Secondary	R562	1		P066	28,137370	-25,955400	4
0229	Rembrandt Park	Secondary	R025	1	5,7	P091	28,141430	-26,115000	4
0230	Randpark Ridge	Secondary	M005		0,5	D0374	27,951890	-26,111900	5
0231	Lenasia GP	Secondary	M010	1	12	P219	27,870450	-26,317600	2
0232	R59 Meyerton	Secondary	R059	2	16,8	P156	28,005200	-26,548980	4
0234	K101 Halfway House	Secondary	R101		5,7	K101	28,132410	-25,990350	4
0235	Kempton Park AH	Secondary	M032		1,5	D1132	28,263370	-26,093500	4
0236	Driehoek	Secondary	M002	1	2,8	P212	28,142270	-26,218700	4
0237	Bedworth Park	Secondary	R042	2	38,4	P156	27,890330	-26,697900	5
0238	Pomona AH	Secondary	M032		3	D1132	28,281810	-26,083060	3
0239	Sonneglans	Secondary	R512	1	7,5	P103	27,970860	-26,069100	6
0240	Waterkloof Ridge	Secondary	M010	1	9,8	P036	28,239740	-25,814900	4
0241	Elardus Park	Secondary	R050	1	14,3	P036	28,260070	-25,823240	4



0242	Gateway	Secondary	R101	2	20	P001	28,159090	-25,899700	4
0243	Muldersdrift	Secondary	N014	2	37,4	P158	27,848400	-26,030930	4
0244	Albertsdal	Secondary	R556	1	1,2	P072	28,108430	-26,355270	4
0245	Waterkloof AFBase	Secondary	M010		10,8	K103	28,212010	-25,810700	4
0246	Bredell AH	Secondary	R023	1	9,5	P068	28,279790	-26,066770	4
0247	Esselen Park	Secondary	R025	2	0,4	P091	28,262400	-26,032700	4
0248	Doornkop MB	Secondary	R553	1	60,4	P073	27,962570	-26,270700	4
0249	Falcon Ridge	Secondary	R082	1	14	P001	27,936370	-26,586390	2
0250	Willow Glen AH	Secondary	M010		3	K069	28,351400	-25,774240	4
0251	K69 Nellmapius	Secondary	M010		0,4	K069	28,366310	-25,754600	2
0252	Mamelodi South	Secondary	M010		1	D2561	28,374260	-25,743920	2
0253	De Wildt	Secondary	R513	1	25	P106	27,926990	-25,672090	2
0254	R25 Tweefontein	Secondary	R025	1	6	P095	28,767799	-25,770230	2
0255	Bronkhorstspruit Dam	Secondary	R042	2	33	P095	28,739780	-25,866840	2
0256	Geesteveld AH	Secondary	R050	1	36	P036	28,395320	-25,985510	2
0257	Klipfontein	Secondary	Modder Rd		1	K175	28,493520	-26,155230	2
0259	Daveyton	Secondary	R051	1	6,6	P067	28,397499	-26,158330	4
0260	Devon West	Secondary	R550	1	23	P174	28,721740	-26,386910	2
0261	Devon South	Secondary	R548	3	3	P036	28,778055	-26,381390	2
0262	Mackenzieville	Secondary	R051	2	3	P101	28,540290	-26,460980	2
0264	Nigel Golf	Secondary	R051	1	0,35	P041	28,460160	-26,389460	4
0265	Panorama GP	Secondary	R042	1	18,4	P167	28,055360	-26,637060	2
0266	Henley-on-Klip East	Secondary	R551	1	21	P027	28,071500	-26,558130	2
0267	Vaal Marina	Secondary	R054		37,4	D0083	28,280690	-26,856520	2
0268	Louisrus	Secondary	R057	1	12	P155	27,778980	-26,654420	2
0269	Vlakplaas	Secondary	R054	1	59	P024	27,744420	-26,624270	2
0271	Meerhof	Secondary	R511	1	23,7	P249	27,911388	-25,749722	2



0272	Pelindaba	Secondary	R104	1	23	P031	27,922501	-25,788880	2
0273	Cullinan East	Secondary	R513		4,4	D0713	28,559920	-25,665850	2
0274	Ekanustria	Secondary	R568		12	D0670	28,709790	-25,700600	2
0275	Shere AH	Secondary	M006		1,1	D2762	28,349060	-25,783430	4
0276	Heuweloord GP	Secondary	R114	1	9	P102	28,112250	-25,878130	2
0277	Voortrekkerhoogte	Secondary	R101	2	5	P001	28,177120	-25,770880	5
0278	Raslouw AH	Secondary	M010		1,3	K103	28,124900	-25,837100	2
0279	Clubview	Secondary	M010		6,4	K103	28,172480	-25,821940	2
0280	Irene South	Secondary	M018	1	15	P038	28,225555	-25,903330	2
0281	Rietvlei	Secondary	R550	1	12	P140	28,337500	-26,387770	2
0282	Zonkizizwe	Secondary	R550		22	D0064	28,098110	-26,418800	2
0283	Waterval	Secondary	R550		24,6	D0064	28,073580	-26,417290	2
0284	Daleside West	Secondary	R557		1	D1322	28,048410	-26,489090	2
0285	Keylersrus	Secondary	R557		15	D1240	28,160840	-26,546230	2
0286	Walkerville West	Secondary	R557		2	D0786	27,933170	-26,440930	2
0287	Devon East	Secondary	R029	1	45	P005	28,833240	-26,382610	2
0289	Edleen South	Secondary	CR Swart		0,4	D0051	28,195280	-26,093940	4
0291	Suiderberg WIM	Secondary	R080	1	4	P159	28,132250	-25,703695	2
0292	Mooiplaas SH West	Secondary	M006		4	D2762	28,370980	-25,805200	2
0293	Mooiplaas SH East	Secondary	M006		5,9	D2762	28,385559	-25,816389	2
0294	Mooiplaas SH North	Secondary	M006		5,8	D0631	28,425280	-25,831940	2
0295	Nooitgedacht	Secondary	R114	1	40	P039	27,913760	-26,005220	2
0296	Temba	Secondary	Harry Gwala Ave		0,5	D2757	28,279160	-25,404200	2
0297	Bridle Park AH	Secondary			12,9	D0049	28,032219	-25,938900	2
0298	Valhalla South	Secondary	M010		4,2	K103	28,151890	-25,828751	2
0299	Ga-Rankuwa	Secondary			1	D2266	28,042223	-25,620001	2
0301	Bon Accord North	Secondary			5	D0434	28,207939	-25,606690	2



0302	Die Hoewes	Secondary	N014	1	6,7	P158	28,182350	-25,819410	7
0304	Glen Austin AH	Secondary			16,8	D0795	28,171360	-25,956760	2
0305	Thaba-Tshwane	Secondary	R101	2	8	P001	28,165870	-25,793850	2
0306	Hennops River	Secondary	R101	2	12,2	P001	28,158420	-25,829630	2
0307	Buccleuch	Secondary	R101	2	37,7	P001	28,099490	-26,051110	4
0308	Klip River	Secondary	M061		3,8	D0073	28,078820	-26,449280	2
0309	Sonnedal AH	Secondary	M067		3,9	D1410	27,909080	-26,041150	2
0310	Phumula	Secondary	Leondale R		0,3	D2205	28,200560	-26,313470	2
0311	Rietfontein AH	Secondary	M005		11,5	D0374	27,882360	-26,039440	2
0312	Eikenhof	Secondary	R550		14,2	D0766	27,991400	-26,334400	2
0314	Itumeleng	Secondary		1	6,5	P230	28,063612	-25,556667	3
0315	Tembalihle	Secondary	R554	1	19,6	P241	27,895480	-26,339530	2
0316	Rietvlei AH	Secondary		1	47	P039	27,850000	-26,033333	2
0317	Heidelberg GP	Secondary			1,4	D0057	28,373056	-26,504440	2
0319	Witfontein	Secondary	R023	1	12,5	P068	28,270000	-26,051900	2
0320	Polar Park	Secondary			0,3	K146	28,114370	-26,361550	2
0321	St Bernard	Secondary	M010		8,7	K069	28,306500	-25,803820	2
0322	Joan Rd	Secondary	Joan Rd		5,8	D1073	28,061600	-26,451390	2
0324	Daleside	Secondary	R557		0,1	D1322	28,057280	-26,490780	2
0325	Cloorkop	Secondary	M018		9	D1511	28,182501	-26,057777	4
0326	Chartwell AH	Secondary	R552		5,5	D1027	27,979333	-25,983719	4
0327	Zwartkops Raceway_4L	Secondary	R055	1	0,8	P066	28,112194	-25,805916	4
0328	Allens Nek South_6L	Secondary	M047	1	5,6	P126	27,913240	-26,131800	6
0329	Die Hoewes_7L	Secondary	N014	1	6,7	P158	28,181944	-25,817499	7
0330	Lanseria North New	Secondary	R512	2	6,8	P103	27,907499	-25,939362	2
0331	Bredell AH East New	Secondary	M032		4,9	D1132	28,289722	-26,081944	4
0332	Allens Nek South New	Secondary	M047	1	5,6	P126	27,913334	-26,131861	6



0333	Snake Valley New_6L	Secondary	N014	1	5,2	P158	28,179211	-25,801027	6
0334	Lanseria North New 2	Secondary	R512	2	6,8	P103	27,907499	-25,939362	2
0335	Buccleuch New 4L	Secondary	R101	2	37,7	P001	28,102222	-26,046944	4
0337	Muldersdrift GP_5L	Secondary	N014	1	50,7	P039	27,835443	-26,057945	5
0338	Rosslyn North	Secondary	M020		5	D0031	28,079140	-25,597445	4
0339	Rosslyn West_5L	Secondary	R566		13	K008	28,069944	-25,624140	5
0340	Snake Valley_6L	Secondary	N014	1	5,2	P158	28,180317	-25,800292	6
0341	Clayville East_4L	Secondary	M005	1	0,1	P122	28,243880	-25,970800	4
0342	Buccleuch_4L	Secondary	R101	2	37,7	P001	28,102222	-26,046944	4
0343	Die Hoewes_7L New	Secondary	N014	1	6,7	P158	28,182350	-25,819410	7
0344	Lanseria North_New	Secondary	R512	2	6,8	P103	27,907499	-25,939362	2
0345	Old Pta Rd South_New	Secondary	R101		1	K101	28,120527	-26,020666	4
0351	Kameeldrift East New	Secondary	R513	5	1,3	P002	28,294250	-25,685350	5
0357	R42 Roodepoort	Secondary	R041			P42/1	27,869752	-26,169295	2
0358	Malibongwe	Secondary	R512			P103/1	27,956175	-26,050866	4
0359	Link	Secondary	R025			P38/1	28,258124	-26,035665	5
0360	Dann	Secondary	M43			P40/1	28,257795	-26,106245	6
0361	Sunninghill	Secondary	M9			K73	28,061398	-26,034844	4
0362	Kingfisher	Secondary	R511			P79/1	29,009087	-26,024596	7
0363	Withok	Secondary	R023			P6/2	28,338152	-26,320998	4
0522	Blesbokspruit West	Secondary		1	11,8	P243	28,171667	-26,730083	2
0523	Blesbokspruit North	Secondary	R549	2	31,3	P041	28,175050	-26,729280	2
0744	Vaal dam	Secondary	R054		14,5	D0083	28,086166	-26,738110	2

The list given will be updated at the end of the current contract, there will be approximately 250 secondary stations, the successful tender should take time to familiarize him/her with the positions of all the stations at his own cost and time, before the launch of the contract. The repairs of station and the time it takes must be considered at beginning of contract given that some stations may be damaged/vandalised.



GAUTENG PROVINCE
ROADS AND TRANSPORT
REPUBLIC OF SOUTH AFRICA

**SPECIFICATION FOR THE SUPPLY AND
INSTALLATION OF INDUCTIVE LOOPS ON
ROADS FOR TRAFFIC SURVEYS**

SPECIFICATION FOR THE SUPPLY AND INSTALLATION OF INDUCTIVE LOOPS ON ROADS FOR TRAFFIC SURVEYS

1. INDUCTION LOOPS

- 1.1 The grooves for the loops and feeders shall be formed in the road surface by cutting with a suitable diamond saw to a depth of at least 25 mm and a width of 4 mm (3,2 mm width may be acceptable if governed by the width of the diamond blade). Sawing shall be done carefully by a competent operator to prevent undue spalling of the road surface.
- 1.2 The completed grooves shall be accurate to within a tolerance of 5 mm both horizontally and vertically in respect of position, lengths and widths specified.
- 1.3 A continuous length of the approved wire as specified for loops and feeders shall then be inserted in the groove in a clockwise direction such that three complete turns will be provided for the loop. The loop and feeder wires shall be protected by means of a neoprene cord inserted snugly into the groove allowing for a sealant cover of 10 mm \pm 2 mm over the wires.
- 1.4 Feeder wires do not form part of a loop but shall be an extension of the loop without any joints or splices up to the concrete base where the feeders terminate. The feeder wires from each loop shall, except for where placed in the saw cut grooves, be twisted as a pair with at least 5 twists per metre. Where joints or splices are necessary due to unforeseen circumstances, they shall not be nearer than 2 m from the edge of the road.
- 1.5 The transition for the feeder cables from the road to the edge of the road shall be affected by drilling a 22 mm diameter hole approximately 400 mm from the edge of the road and at an angle such that the drilled hole shall emerge at a depth of \pm 500 mm below the surface at the edge of the pavement. A 20 mm diameter low pressure polyethylene pipe shall be inserted into the drilled hole to at least 25 mm below the surface of the road to be used as a sleeve pipe. The polyethylene pipe shall lead the feeders to a PVC U/G gully housing located at the edge of the road. From the edge of the road up to the concrete base the feeder cables shall be protected by laying them in a 40 mm diameter Class 3 low pressure polyethylene irrigation pipe. The sleeve pipe shall be laid in a trench at least 300 mm deep.
- 1.6 After the loop and feeder wires have been laid in position, a neoprene cord shall be snugly fitted into the grooves above the wires. The grooves shall be filled up and covered with a flexible epoxy such as Mega poxy or an approved equivalent. Clean dry silica sand may be used as a filler to the epoxy. Care shall be taken to keep the temperature of the mix below 60°C to prevent any possible damage to the wire insulation.

- 1.7 Feeders from more than one loop may be inserted in one groove if the groove can accommodate the feeder pairs allowing a minimum sealant depth of 10 mm on top of the neoprene cord protecting the wires.
- 1.8 The ends of the feeder cables shall not be soldered. The cables shall be of sufficient length to enable termination inside the instrument housing with free ends of at least 1 000 mm.
- 1.9 The ends of feeder cables shall be clearly and permanently marked with plastic cable markers for identification of the loops. Loops shall be numbered in sequence and the ends of feeder cables shall be marked with letters corresponding to the loop numbers.

2. TRENCHING AND BACKFILLING

- 2.1 The trenches required for the feeder cables from the edge of the road to the concrete base shall be at least 500 mm deep. The protective sleeve pipes with the feeder cables shall be covered with a 50 ± 10 mm layer of sand or soil free of stone before backfilling is done. Backfilling shall be done with material excavated from the trench and the material shall be compacted to the density of the surrounding material. Any shortfall of material shall be supplemented with selected imported material.
- 2.2 The width of the trench shall be sufficient to accommodate all the feeder cables in their protective sleeve pipes laid side by side with a clear space of 50 ± 10 mm between protective sleeve pipes.

ANNEXURE C

**LOCATION OF PERMANENT TRAFFIC
COUNTING STATIONS
(FOR 365 DAY CONTINUOUS ELECTRONIC RECORDINGS)**

Annexure C

LOCATION OF PERMANENT TRAFFIC COUNTING STATIONS

Shown underneath are the existing permanent counting stations

New station locations will be indicated and permanent loops, if necessary, will be installed on the request of the Department

Recordings will have to be maintained at least 90% of the time.

Continuous data transmitting devices will have to be supplied, installed and maintained.

Site ID	Site Name	Site Type	Route	Section	Distance	Road	Longitude	Latitude	Physical Lanes
0006	R55 Heuweloord	Permanent	R055	1	10.5	P066	28.105005	- 25.889135	4
0009	Onderstepoort	Permanent	M035		0.5	D0318	28.182472	- 25.653639	2
0013	Paul Kruger Ext	Permanent	R513	6		P002	28.183445	- 25.661888	4
0029	ORT Bronberrick	Permanent	N014		13.2	P158/01	28.170000	- 25.873000	7
0041	Poortview AH(BL)	Permanent	M047	1	16	P126	27.842167	- 26.063139	2
0043	Muldersdrif GP	Permanent	N014	1	50.7	P039	27.835440	- 26.057950	5
0044	Poortview AH South	Permanent	R028	1	51.5	P039	27.823590	- 26.067050	5
0045	Tarlton	Permanent	R024	1	12.6	P016	27.655960	- 26.081150	2
0048	Allens Nek	Permanent	R564	1	4.6	P139	27.910917	- 26.123249	4
0065	K27 Randjesfontein	Permanent	R562	2	45.2	P001	28.147790	- 25.944580	4
0072	Westonaria South(BL)	Permanent	R028	1	39	P088	27.671083	- 26.351444	2
0073	Lenasia (RL)	Permanent	N012	6	86.5	P003	27.793979	- 26.305190	4
0095	Spaarwater AH	Permanent	R023		31	P006-02	28.349720	- 26.445990	2
0108	Modderfontein Rd(CM)	Permanent	R025	1	12.8	P091	28.197983	- 26.088575	4
0123	Magaliesburg (RH)	Permanent	R024	1	39.6	P016	27.505444	- 25.942612	2
0127	Bronkorstspuit (RM)	Permanent	R025	1	49.4	P006	28.640600	- 25.861900	2
0129	ORT Botha Ave S New	Permanent	M018	1	10.17	P038	28.221100	- 25.860800	6
0131	Pyramid (BH)	Permanent	R101		37	P001-03	28.274597	- 25.443548	2

Site ID	Site Name	Site Type	Route	Section	Distance	Road	Longitude	Latitude	Physical Lanes
0141	Wes Moot (BM)	Permanent	R514	4	77	P002	27.958389	- 25.721640	2
0161	Carstenhof (CL)	Permanent	M039		10.2	D0051	28.135630	- 26.031000	5
0169	Bapsfontein South	Permanent	R051	1	20.8	P006	28.418980	- 26.013060	2
0191	Glenvista (CH)	Permanent	R556	1	10.2	P072	28.047890	- 26.299000	4
0200	Heidelberg East (RH)	Permanent	R023	2	93.6	P004-02	28.437880	- 26.586680	2
0290	Ratanda	Permanent			5.5	D0067	28.317280	- 26.671500	2
0313	Cosmo City	Permanent	R512	1	12.5	P103	27.938889	- 26.014166	4
0323	Bredell AH East	Permanent	M032		4.9	D1132	28.289722	- 26.081944	2
0350	Viskuil	Permanent	R042		18.4	P101-01	28.613270	- 26.286320	2
0353	Laezonia AH	Permanent	R511	1		P039	28.027194	- 25.901722	2
0501	Gallo Manor	Permanent	M001	1	6	P206	28.088892	- 26.071112	8
0700	Endicott West (BH)	Permanent	N017	2	48	P109-01	28.573334	- 26.309166	3

**SPECIFICATION FOR SUPPLY, INSTALLATION
AND COMMISSIONING OF COMPREHENSIVE
TRAFFIC MONITORS**

**(Weigh-in-motion sensors with a double set of
embedded loops, recording equipment and data transmitting
devices)**

SPECIFICATION OF THE SUPPLY, INSTALLATION AND COMMISSIONING OF COMPREHENSIVE TRAFFIC MONITORS

1. SCOPE

The work involved in the provision and installation of the Weigh-in-Motion (WIM) traffic measuring stations that consist of at least the following activities:

- The successful tenderer's establishment on site
- Accommodation of traffic during installation operations
- Sawing of grooves for induction loops, heavy vehicle axle counting devices and feeder cables
- Sawing and excavation for WIM sensors where specified and sawing of grooves for feeder cables.
- Supply and installation of electric wires for induction loops and feeder cables.
- Installation of heavy vehicle axle counters, WIM sensors and feeder cables.
- Excavation and backfilling of trenches for feeder cables from edge of wearing course to concrete base for the instrument housing.
- Protection of feeder cables with polyethylene pipe sleeves in trenches.
- Installation or construction of concrete bases.
- Installation of instrument housing, masts and solar panels or mains power supply, communications and the provision and installation of wiring from the source of the power supply (mains or solar panel) and the communications to the instrument housing, including earth protection and earth spike, if applicable.
- Supply and installation of recording equipment and data transmitting device.
- Erection of station information plate.
- Testing, commissioning and initial calibration of measuring station.
- Documentation of information and test results of each installation.
- Cleaning up of site at the completion of each installation.
- Regular calibration, to be done no less frequently than once every **6 months** for each WIM measuring station in both directions.
- Removal of portable equipment and releasing the assets used in the road reserve and paid for by the Department and making good at the end of the contract (or at the end of an extended contract).
- Reinstating to standard (as directed by the department – **see Annexure F**) of the condition of the pavement where WIM sensors are removed.

EQUIPMENT TO BE USED FOR WEIGH-IN-MOTIONS – BENDING PLATE FROM IRD-PAT WITH THE WIDER PLATE – WP 1750

2. DESCRIPTION OF SITE AND ACCESS



The site is the road reserves of all the routes on which the proposed traffic measuring stations are located as indicated and is determined by the Department.

Access to the site can be obtained from the existing public routes.

3. SITE FACILITIES AVAILABLE

3.1 Successful tenderers' camp site

The successful tenderer is responsible for providing a suitable site for his/her camp, if required, and providing accommodation for his personnel and labourers as required.

3.2 Power supply and other services

The successful tenderer shall make his/her own arrangements concerning the supply of electrical power and all other services. No direct payment will be made for the provision of electrical and other services. The cost thereof shall be deemed to be included in the rates and amounts tendered for the various items of work for which these services are required.

4. ROAD PAVEMENT AND SURFACE

- 4.1 The successful tenderer must inspect the proposed positions for the installation of WIM stations and if deemed unsatisfactory (not conforming to specifications by the equipment manufacturer) must advise the department accordingly and not do the installation.
- 4.2 For a section of the road that may deteriorate during the contract period to such an extent that it has a meaningful negative affect on the accuracy of the WIM data, the department may choose to discontinue the site or to re-establish on a alternate position or to repair the road to conform to the above specification within a period of ninety days from receiving written notice of such a requirement from the successful tenderer. Re-establishment will be considered and remunerated as if it is a new (future) site.
- 4.3 No claims will be considered for the quality of data affected due to the road not being within specification prior to or within this ninety-day period.
- 4.4 The successful tenderer shall provide a foundation/base for the WIM sensor.
- 4.5 Reinstating to standard (as directed by the department) of the condition of the pavement where WIM sensors are removed – **see Annexure F**

5. MEASURING STATION

- 5.1 On roads with surfaced shoulders WIM sensors shall be installed to measure the left side set of wheels of vehicles travelling in the left lane or the right side set of wheels of vehicles travelling on the shoulder. On roads without surfaced shoulders WIM sensors shall be installed to measure the left side set of wheels of vehicles. On roads with more than one lane per direction a WIM instrument is not required in the inside lane(s).
- 5.2 The successful tenderer shall ensure that the WIM sensors are installed in accordance with the manufacturer's specifications.

6. INDUCTION LOOPS (See also requirements stated in Annexure B)

- 6.1 The grooves for the loops and feeders shall be formed in the road surface by cutting with a suitable diamond saw to a depth of at least 25 mm and a width of 4 mm (3,2 mm width may be acceptable if governed by the width of the diamond blade). Sawing shall be done carefully by a competent operator to prevent undue spalling of the road surface.
- 6.2 The completed grooves shall be accurate to within a tolerance of 5 mm both horizontally and vertically in respect of position, lengths and widths specified.
- 6.3 A continuous length of the approved wire as specified for loops and feeders shall then be inserted in the groove in a clockwise direction such that three complete turns will be provided for the loop. The loop and feeder wires shall be protected by means of a neoprene cord inserted snugly into the groove allowing for a sealant cover of 10 mm \pm 2 mm over the wires.
- 6.4 Feeder wires do not form part of a loop but shall be an extension of the loop without any joints or splices up to the concrete base where the feeders terminate. The feeder wires from each loop shall, except for where placed in the saw cut grooves, be twisted as a pair with at least 5 twists per metre. Where joints or splices are necessary due to unforeseen circumstances, they shall not be nearer than 2 m from the edge of the road.
- 6.5 The transition for the feeder cables from the road to the edge of the road shall be affected by drilling a 22 mm diameter hole approximately 400 mm from the edge of the road and at an angle such that the drilled hole shall emerge at a depth of \pm 500 mm below the surface at the edge of the pavement. A 20 mm diameter low pressure polyethylene pipe shall be inserted into the drilled hole to at least 25 mm below the surface of the road to be used as a sleeve pipe. The polyethylene pipe shall lead the feeders to a PVC U/G gully housing located at the edge of the road. From the edge of the road up to the concrete base the feeder cables shall be protected by laying them in a 40 mm diameter Class 3 low pressure polyethylene irrigation pipe. The sleeve pipe shall be laid in a trench at least 300 mm deep.

- 6.6 After the loop and feeder wires have been laid in position, a neoprene cord shall be snugly fitted into the grooves above the wires. The grooves shall be filled up and covered with a flexible epoxy such as mega poxy or an approved equivalent. Clean dry silica sand may be used as filler to the epoxy. Care shall be taken to keep the temperature of the mix below 60°C to prevent any possible damage to the wire insulation.
- 6.7 Feeders from more than one loop may be inserted in one groove if the groove can accommodate the feeder pairs allowing a minimum sealant depth of 10 mm on top of the neoprene cord protecting the wires.
- 6.8 The ends of the feeder cables shall not be soldered. The cables shall be of sufficient length to enable termination inside the instrument housing with free ends of at least 1 000 mm.
- 6.9 The ends of feeder cables shall be clearly and permanently marked with plastic cable markers for identification of the loops. Loops shall be numbered in sequence, and the ends of feeder cables shall be marked with letters corresponding to the loop numbers.

7. TRENCHING AND BACKFILLING

- 7.1 The trenches required for the feeder cables from the edge of the road to the concrete base shall be at least 500 mm deep. The protective sleeve pipes with the feeder cables shall be covered with a 50 ± 10 mm layer of sand or soil free of stone before backfilling is done. Backfilling shall be done with material excavated from the trench and the material shall be compacted to the density of the surrounding material. Any shortfall of material shall be supplemented with selected imported material.
- 7.2 The width of the trench shall be sufficient to accommodate all the feeder cables in their protective sleeve pipes laid side by side with a clear space of 50 ± 10 mm between protective sleeve pipes.

8. STATION EARTHING

All permanent measuring station installations shall be provided with a “crows foot” earth protection system. The earth wire which shall serve as a lightning conductor consists of bare copper strand wire with a minimum cross-sectional area of 10 mm² and shall be earthed by means of an earth spike. The earth spike shall be a copper plated steel rod with a minimum diameter of 16 mm and a minimum length of 1 000 mm manufactured in accordance with SABS 1063. Coarse salt shall be applied to the trench at the rate of 1 kg per metre which shall be mixed into the backfill material. The backfill to the trench shall be compacted to the same density as the surrounding ground.

9. STATION IDENTIFICATION BOARDS

The detail of the proposed identification board shall be submitted to the Department for approval prior to the erection of such a board.

AT NEW STATIONS

All new measuring stations shall be identified by means of a station identification board.

AT EXISTING STATIONS

The department can request that existing measuring stations not identified by means of a station identification board, be similarly numbered/identified.

10. ELECTRIC WIRES AND CABLES

The material and instalment must comply with the specifications of the manufacturer.

11. COMMUNICATION SERVICE AND ELECTRICAL CONNECTIONS TO COUNTING EQUIPMENT

All applications for communication (e.g. telephone) and electrical connections shall be made in the name of the successful tenderer. Upon termination of the contract, the successful tenderer shall arrange for the termination of the services and the successful tenderer's responsibility in this regard shall therefore cease after payment of all accounts.

12. COMMISSIONING

Each traffic measuring station shall be commissioned before payment for data supplied can be claimed for that station.

Commissioning shall include:

- successful completion of calibration.
- production of one week's traffic measuring data with a minimum of 80% of data capture; and
- Successful access to the station for on-line monitoring of traffic.

13. CONDITION OF MEASURING STATIONS AT THE END OF CONTRACT PERIOD OR AT DECOMMISSIONING OF SITE

At the end of the operation period the successful tenderer shall ensure that the following is done at each measuring station before the final payment certificate will be issued by the engineer:

- 13.1 the sealing of the grooves in which feeder cables, piezo-electric sensors, induction loops, frames etc. were laid, is in a serviceable and acceptable condition – if not, the sealing shall be repaired.
- 13.2 the successful tenderer's electronic roadside equipment may be removed but the cables, cable sleeve pipes and housing foundation block shall be left in position.
- 13.3 the cable ends shall be neatly rolled back into the cable sleeve pipe and the sleeve pipe shall be capped.
- 13.4 the successful tenderer's WIM sensors may be removed provided suitable dummies are placed in the frames or the pavement is reinstated to standard (as directed by the department – see **Annexure F**) where WIM sensors are removed
- 13.5 the electrical and communication services shall be terminated and all accounts for these services during the operational period shall be paid by the successful tenderer; and
- 13.6 the measuring stations (including the station identification boards) shall be left in a neat, tidy and acceptable state.

14. MEASUREMENT AND PAYMENT

- 14.1 The unit of measurement shall be the number of traffic measuring stations installed (complete) for this payment item, a traffic measuring station includes equipment for measuring traffic data in both directions of traffic flow (unless road carries one way traffic only) and a weigh-in-motion instrument specified to measure the data of heavy vehicle axles in lanes as specified.
- 14.2 The rate shall include the provision of all WIM sensors, equipment, batteries, chargers (mains or solar), electricity (mains, solar or other), communications, lightning protection and all items required to commission and operate the station. Specific detail of each station is provided underneath and in the project specifications.
- 14.3 The rate shall further include all the work necessary for the supply and installation of the WIM sensor frames and cables, including the sawing and excavation for the frames, grouting and levelling of the frames using an approved epoxy to the specified tolerances, sawing of grooves, backfilling of the grooves with an approved sealant, trenching and backfilling of trenches, protection of feeder cables with polyethylene sleeve pipes accommodating traffic, and all material, labour, tools, equipment and incidentals necessary to complete the work.

- 14.4 The rate shall also include boxes, concrete bases, establishment on site for installation and subsequent dis-establishment, the initial calibration and the commissioning of the complete traffic measuring station.
- 14.5 The rate shall also include all repairs and maintenance required during the 12 month defects liability period.
- 14.6 This payment item will also be used for the payment for the supply, installation and commissioning of additional measuring stations during the contract period if and when so instructed by the engineer.

15. REPORTING

15.1 Frequency

WIM traffic measuring equipment shall be provided by the successful tenderer and installed, maintained and calibrated in accordance with the manufacturer's specifications. Provision shall be made to calibrate the WIM equipment at no longer than six (6) monthly intervals.

Data from WIM stations shall be extracted at least once a week and the data shall be validated within three (3) working days.

Communications with each measuring station shall be tested and the results recorded daily by the successful tenderer. Any failure in communication to any WIM station shall be re-instated within 72 hours from the time of recording the failure.

15.2 Format and supply

The data shall be reported in accordance with RSA National Standard (Data type 13, Data type 21 and Data type 30). Only heavy vehicles shall be recorded in Data type 13 format. The time interval for Data type 21 and 30 shall be 1 hour (60 minutes).

The data shall be supplied monthly on an electronic basis (e.g. by means of FTP) with an accompanying overview containing as a minimum the following:

- list of submitted files;
- period of observation;
- traffic volumes;
- % of heavy vehicles;
- % of overloaded vehicles.

Also see 3.14 under data format making provision for CSV files. It will be expected to provide for the old RSA and the new CSV file formats.

15.3 On-line access requirements

Access shall be provided to authorised persons to all WIM stations, physically (in presence of the successful tenderer) and electronically (by network means if so requested).

The on-line access requirements that a user may select shall as a minimum be one of the following:

- a) Identification of the site, directions of traffic lanes, date, status and diagnostics of the station and values of calibration constants.
- b) Line-images of individual vehicles, as they arrive, consisting of:
 - time of arrival
 - lane number
 - speed in km/h (no decimals)
 - length in metres (one decimal)
 - number of axles, individual axle spacings and axle masses
 - type (light or heavy)
 - gross vehicle mass in tonnes (one decimal).
- c) Traffic characteristics for the current day starting at 00:00, namely:
 - number of vehicles
 - percentage of heavy vehicles
 - percentage of overloaded heavy vehicles
- d) Provide for a download of a copy of raw data, within a period since the last data extraction, without disturbing the data file stored in the WIM machine.

Provision shall be made for at least two levels of security where certain users have limited access only to data types 1 to 4 above.

16. CALIBRATION

To ensure that the WIM and other equipment are serviceable and sufficiently accurate, a thorough inspection and calibration shall be performed at each WIM station by the successful tenderer, at maximum twelve-monthly intervals.

The Department reserves the right to decrease the intervals between calibrations and adjustment of equipment should the drift be in excess of 15% from spot checks that may be done by the Department. Additional calibrations and adjustment of equipment done due to this decrease in interval will be done at the successful tenderer's cost.

After each calibration, a calibration certificate shall be issued, a copy of which shall be forwarded to the Department together with the calibration records.

Brief Summary of the Truck Tractor (TT) Method

WIM data on the major toll concessions around Gauteng (N1 North, N4 Maputo Corridor, N3 Toll Concession and Bakwena Platinum) is calibrated using a retrospective calibration method called the Truck Tractor (TT) Method. The method was refined for and endorsed by SANRAL, and was consequently incorporated into the software that calculates the cost of overloading on toll roads, which was developed by CSIR for SANRAL.

The TT Method uses a special sub-population of trucks from the traffic stream to determine the calibration factor, which is then applied to the data in retrospect before inferences on loading parameters are made. It focuses on 6- and 7-axle trucks with truck-tractors having a single steering and double driving axles, called Eligible Trucks. The Eligible Trucks with average axle loads of 6.6 – 8.5 tons are called Selected Trucks. All axle loads in the database, typically for a month period, are multiplied with a calibration factor k_{TT} , so that the average truck-tractor load of Selected Trucks is 21.8 tons.

The TT Method also incorporates a series of data quality checks to assess the stability of loading measurements, the extent of random measurement error (scatter) and lane discipline. The data quality checks are listed below:

- $SD T_{TT}$ (*Standard Deviation of Truck-Tractor Loads*) quantifies the spread of WIM-measured truck-tractor loads of Selected Trucks. The value should always be less than 2.0 t, but preferably less than 1.9 t.
- $SD F_{TT}$ (*Standard Deviation of Front-Axle Loads*) quantifies the spread of WIM-measured front-axle loads of Selected Trucks. The value should always be less than 1.0 t, but preferably less than 0.9 t.
- F_{TT} (*Front-Axle Load*) is the average front-axle load of Selected Trucks. This value should be stable from month to month, at a value between 5.6 t and 6.6 t. The



value of F_{TT} is different for each WIM site, and depends on the gradient and vehicle acceleration / deceleration at the position of the WIM.

- *%Clip (Percentage Clipping)* is the percentage of Eligible Trucks that clipped the WIM sensor. It is derived from the ratios between front-axle and truck-tractor loads of all Eligible Trucks.
- *k_{TT} (TT Calibration Factor)* is the factor by which all axle load measurements are multiplied in order to suppress the systematic WIM measurement error. The value of k_{TT} should be stable from month to month, in the range between 0.90 and 1.10.

The TT Method was developed by BKS to enhance the quality of WIM data on the mentioned toll roads around Gauteng for which BKS has been the overloading management consultants for several years. The calibration and data quality checking are performed regularly. The results are then presented to the concessionaires and discussed at monthly meetings with the WIM service providers.

17. QUALITY OF DATA AND REMUNERATION

17.1 Validation

- a) The successful tenderer will examine each submitted data file by means of validation and verification software for incorrect or illogical records (such as bad record format, bad calendar date, bad time of the day, speed out of permissible range, length out of permissible range, heavy vehicles with no axles, one axle, axle spacing less than 1 m or longer than 10 m). The data files will also be cross-checked for totals of vehicles. Defective records will be rejected.
- b) Records that can reasonably be identified as being out of line with actual traffic patterns will be discarded manually by the successful tenderer.
- c) Validation includes checks on the formal correctness of data and the scrutiny of measured traffic and loading patterns.
- d) Validation of data will also be conducted by the Department from time to time. This validation by the successful tenderer will not relieve the successful tenderer from also providing validated data.
- e) Should there be disagreement between validation results generated by the successful tenderer and the Department; a validity model raw data

file shall be processed by both validation tools to locate the cause for the discrepancy. If monthly payments to the successful tenderer must be made while this issue is unresolved, the engineer shall determine what validation results shall be used for such interim payments.

17.2 Extent of good records

- a) Good WIM records are defined as those that passed validation checks. Defective WIM records are those that failed validation checks.
- b) The percentage of good data is the percentage that good WIM records are of the sum of good WIM records plus defective WIM records for a specific period.
- c) The validation will determine the proportion of the month in which good WIM records were collected, and the percentage of good data collected during that portion of the month for a measuring station in both directions.
- d) The so-called extent of good records (EGR), which is the product of the two above figures, will be the basis for the remuneration of the successful tenderer.
- e) If there are good WIM records for a portion of a day only, that day will be taken as a whole one.
- f) The proportion of the month will be the number of days on which any good records were collected divided by the number of days for that month.

17.3 Remuneration formula for each WIM measuring station

The remuneration formula applicable to this, which is to be applied to each WIM measuring station in each direction of traffic flow individually, is:

$$P = T.Z$$

Where

- P payment in R for the station for the month in one direction of traffic flow
- T tendered amount in R per month for the station
- Z factor depending on the extent of good records for the station for the month expressed as a percentage, (%EGR) as shown in the table below

%EGR	Z
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0 – 25	0
25 – 75	$(\%EGR - 25) / 50$
75 – 100	1

18. MEASUREMENT AND PAYMENT

- 18.1 The unit of measurement shall be the station-month (sta.mo) for which the station is in operation. Payment shall be made for data collection from a specific station commencing after the successful commissioning of the specific station.
- 18.2 The tendered rate shall include for the continuous supply of data of traffic in both directions, maintenance of the equipment (including computer/services, sensors and electronic equipment), repair or replacement of equipment, batteries, chargers (mains or solar), electricity (mains or solar), communications, lightning protection and all items required to operate the station including spare equipment and WIM sensors in order to collect the specified data.
- 18.3 The rate shall also include all cost for operating, maintaining and calibration for the station, including the cost of all staff, electricity, communications, consumables, transport, insurance, repair or replacement of any equipment as a result of vandalism, damage or being defective or having been stolen, processing and reporting, testing of roads surface and all other items necessary to collect and supply the required data and information as specified.
- 18.4 Payment will be made at monthly intervals at the tendered rate but adjusted for incentives and penalties, provided the following conditions are met:
- a) all the raw data and summary files have been submitted to the Department as specified;
 - b) all the validated data have been submitted to the Department as specified;
 - c) calibration of the specific WIM equipment has been done as specified and approved by the Department.
 - d) the successful tenderer complied with the on-line access for the period under consideration if so required to; and
 - e) the successful tenderer certifies that data has been duplicated and stored separately.
 - f) Any failure in communication with any WIM station shall be rectified within 72 hours from the time of recording the failure. Non-compliance with this stipulation will lead to the application of a penalty of R1 000,00



per day (24-hour period or part thereof) for each occurrence where a communication failure with any WIM station was not rectified within 72 hours as specified.

The penalty shall apply for the period in days (24 hours or part thereof) for which communication failure exceeds the 72-hour grace period.

If any of the above conditions are not met, no payment will be made for the specific measuring station for the period under consideration or part of the period during which applicable conditions were not met.

19. ACCOMMODATION OF TRAFFIC

- 19.1 The successful tenderer will be responsible for the accommodation for traffic which shall include the provision of bypasses (if necessary), temporary barricades, traffic cones, temporary road signs, flicker lights, high visibility clothing for workers, flagmen and everything necessary for the safe and easy passage of all public traffic during the construction and installation, calibration and maintenance operations. The successful tenderer shall comply in this regard with the recommendations given in Chapter 13 of volume 4 of the South African Road Traffic Signs Manual (SARTSM).
- 19.2 The successful tenderer's tendered rates for the relevant items in the schedule of quantities shall include full compensation for all possible additional costs which may arise from this, and no claims for extra payment due to inconvenience as a result of the modus operandi will be considered.
- 19.3 The travelling public shall have the right of way on public roads, and the successful tenderer shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road.
- 19.4 Failure to provide and maintain road signs, warning signs or flicker lights, etc, in a good condition shall constitute ample reason for the engineer to suspend the work until the road signs, etc, have been provided or repaired to his satisfaction.
- 19.5 The successful tenderer may not commence constructional activities before adequate provision has been made to accommodate traffic in accordance with the requirements of this document and the South African Road Traffic Signs Manual. The successful tenderer will be required to adopt the various layouts to suit his specific application. The latter document is obtainable from the National Department of Transport.

19.6 Accommodation of traffic on a two-lane undivided road

The installation of a WIM traffic measuring station shall be done by closing one half of the road temporarily whilst accommodating one-way traffic on the other half in compliance with Chapter 13 Volume 2 of the SA Road Traffic Signs Manual (SARTSM). Both lanes shall be opened to traffic at night.

19.7 Accommodation of traffic on a four-lane undivided road

The installation of a WIM traffic measuring station shall be done by closing off one lane diverting the traffic onto the remaining lane in each direction. Both lanes in each direction shall be opened to traffic at night.

19.8 The successful tenderer shall submit proposals in connection with directional signs to the Department for approval.

20. POSITIONS OF EXISTING WIM'S

20.1 Locations

Site ID	Site Name	Distance	Road	Road Description	Long.	Lat.	Physical Lanes
86	Kliprivier WIM	19.2	P156	P156/1 KM19.2	28.07885	-26.408489	4
133	R25 Bapsfontein	26.6	P006	P006/01 KM26.6	28.460556	-25.977167	2
139	Moloto (BH)	27	P207/01	P207/01 KM27.0 (R573)	28.566067	-25.49308	2
151	Glenharvie HSWIM	57.2	P003-06	P003-06 KM57.2 (N012-17 KM57.2)	27.53904	-26.418369	4
263	Jameson Park	7	P041	P41/1 (R42) KM7.0	28.429722	-26.450001	2
400	Karenpark WIM	4.1	P200-01	P200-01 KM4.1 (R080)	28.11451	-25.66213	4
597	Bapsfontein (BH)	43	P036	P036/01 KM43.0 (R50)	28.460581	-26.029949	2

20.2 Reinstatement of WIM sensors

It is the responsibility of the successful tenderer to reinstate all WIM stations in the time limit provided. It will be expected from the successful tenderer to reinstate at least one (1) WIM stations within the first three (3) months from start of the new contract. Reinstatement at least three (3) more stations within four (4) months of start of the new contract. The last three (3) WIM's must be installed within six (6) months from the start of the new contract. Note that the successful tenderer will have to provide new sensors for all of the above stations. Serial numbers must be provided.

20.3 Sensor plates to be ordered

EQUIPMENT TO BE USED FOR WEIGH-IN-MOTIONS – BENDING PLATE FROM IRD-PAT WITH THE WIDER PLATE – WP 1750. This for a total of 7 HSWIM stations. The sensors and frames will be provided and installed by the successful tenderer.

20.4 Future positions of WIM stations.

The existing locations of the WIM stations are shown above. Future WIM stations will be selected together with the successful tenderer to optimise available infrastructure such as mains power availability, cell phone reception and quality of the road surface.

20.5 Ownership of WIM sensors

All sensors and all equipment to be provided by service provider and will be removed when contract completed.

20.6 Affordability of WIM sensors

All sensors to be provided by the contractor. There are 7 HSWIM stations and both directions to be monitored.

20.7 Power at WIM station locations existing and future

It is the responsibility of the successful tenderer to provide power to all existing and new stations.

21. VIRTUAL WEIGH STATIONS

21.1 Locations of the Virtual Weigh Stations

1 Virtual Weigh Station currently on the road network for both directions.

21.2 Equipment needed

It will be expected from the successful tenderer to provide the following per point in one direction – seen as one set of equipment:

- A new HSWIM inclusive of sensor plates and loops.

- Pole with camera.
- Real time data and information transferred to a back-office that will provide information to the Department via network connected devices.

20.3 Sensor plates to be used

EQUIPMENT TO BE USED FOR WEIGH-IN-MOTIONS – BENDING PLATE FROM IRD-PAT WITH THE WIDER PLATE – WP 1750

20.4 Ownership of sensors

All sensors, frames and equipment to be provided and with completion of contract be removed.

20.5 Power at Virtual Weigh Stations

It will be the successful tenderer responsibility to provide power to these new Virtual stations.

20.6 Data to be collected

Overloaded vehicles on all Gauteng Provincial roads and for the purpose of this three-year contract, only a detailed spreadsheet with the repeat offenders/vehicles registration numbers are needed. This must be done on a 24-hour basis and reports are expected on a monthly basis.

ASSESSMENT CRITERIA

Assessment Criteria

See advertisement for Assessment Criteria.

**SPECIFICATION FOR PAVEMENT PATCHING AND
REPAIRING**

Extract from: Standard Specifications for Road and Bridge Works for State Road Authorities (1998 Edition)**SECTION 3900: PATCHING AND REPAIRING****B3901 SCOPE**

“This section covers the patching of existing pavement layers as well as patching of the existing bituminous surfacing and pothole repairs. Patching shall be any work to the existing pavement layers and surfacing with the purpose of repairing local failures.

It also covers the saw cutting of the existing pavement layers for the purposes of patching and the use of geotextiles in areas where the existing surfacing is to be overlaid with asphalt.

B3902 MATERIALS

Add the following sub-clauses:

“(a) Excavations for patching

“Excavations shall be backfilled with emulsion treated stone or asphalt base or surfacing as instructed by the engineer.”

All the requirements of section 4200: Asphalt Base and Surfacing, shall apply to the asphalt material.

The asphalt surfacing shall be a medium continuous graded mixture where the thickness is 40mm and less and course continuously graded mixture where the thickness is more than 40mm.

Emulsion treated material backfilling of excavations shall be imported crushed stone material. Portland composite cement (CEM II 32,5) shall be added at a rate of 2,0% (by mass) and a 60% stable grade anionic or cationic bitumen emulsion at a rate such that the nett bitumen content shall be 2,0% (by mass).

The material shall be compacted to 98% of modified AASHTO density and shall achieve a minimum unconfined compressive strength of 1500 kPa at 98% of modified AASHTO density.

(a) Geotextile

The geotextile shall be “sealmac” or similar approved.

B3903 PLANT AND EQUIPMENT

Add the following:

“A Sawing machine shall be provided on site before any excavation of patches shall commence. It shall be power driven and able to cut accurately to the required depths and alignment. Skilled operators are required for operating the sawing machines. Operators shall be equipped with suitable safety equipment e.g. safety goggles, etc for operating the sawing machines. No payment shall be made for standing time of the sawing machine.”

**LOCATION OF MANUAL NODES FOR GAUTENG PROVINCE
ON ALL PROVINCIAL ROADS**

GAUTRANS MANUAL DATABASE

Station No	Station Type	LatitudE	LongitudE
1A	Cyclical	25° 57' 34.7" S	27° 31' 33.3" E
1B	Cyclical	25° 57' 34.7" S	27° 31' 33.3" E
1C	Cyclical	25° 57' 34.7" S	27° 31' 33.3" E
2A	Cyclical	25° 58' 13.7" S	27° 32' 11.6" E
2B	Cyclical	25° 58' 13.7" S	27° 32' 11.6" E
2C	Cyclical	25° 58' 13.7" S	27° 32' 11.6" E
3A	Cyclical	25° 53' 25.1" S	27° 28' 54.9" E
3B	Cyclical	25° 53' 25.1" S	27° 28' 54.9" E
3C	Cyclical	25° 53' 25.1" S	27° 28' 54.9" E
4A	Cyclical	25° 55' 40.0" S	27° 54' 09.2" E
4C	Cyclical	25° 55' 40.0" S	27° 54' 09.2" E
4D	Cyclical	25° 55' 40.0" S	27° 54' 09.2" E
5A	Cyclical	25° 56' 34.7" S	27° 54' 32.1" E
5B	Cyclical	25° 56' 34.7" S	27° 54' 32.1" E
5C	Cyclical	25° 56' 34.7" S	27° 54' 32.1" E
5D	Cyclical	25° 56' 34.7" S	27° 54' 32.1" E
6B	Cyclical	25° 56' 53.9" S	27° 30' 55.1" E
6C	Cyclical	25° 56' 53.9" S	27° 30' 55.1" E
6D	Cyclical	25° 56' 53.9" S	27° 30' 55.1" E
7B	Cyclical	25° 53' 13.5" S	27° 36' 39.0" E
7C	Cyclical	25° 53' 13.5" S	27° 36' 39.0" E
7D	Cyclical	25° 53' 13.5" S	27° 36' 39.0" E
8A	Cyclical	25° 46' 41.4" S	27° 58' 20.7" E
8B	Cyclical	25° 46' 41.4" S	27° 58' 20.7" E
8C	Cyclical	25° 46' 41.4" S	27° 58' 20.7" E
8D	Cyclical	25° 46' 41.4" S	27° 58' 20.7" E
9A	Cyclical	25° 58' 21.5" S	27° 41' 06.1" E
9B	Cyclical	25° 58' 21.5" S	27° 41' 06.1" E
9C	Cyclical	25° 58' 21.5" S	27° 41' 06.1" E
10A	Cyclical	25° 54' 42.9" S	27° 37' 01.0" E
10C	Cyclical	25° 54' 42.9" S	27° 37' 01.0" E
10D	Cyclical	25° 54' 42.9" S	27° 37' 01.0" E
11A	Cyclical	25° 58' 06.2" S	27° 55' 19.0" E
11B	Cyclical	25° 58' 06.2" S	27° 55' 19.0" E
11C	Cyclical	25° 58' 06.2" S	27° 55' 19.0" E
11D	Cyclical	25° 58' 06.2" S	27° 55' 19.0" E
12A	Cyclical	25° 59' 46.5" S	27° 55' 32.5" E
12B	Cyclical	25° 59' 46.5" S	27° 55' 32.5" E
12C	Cyclical	25° 59' 46.5" S	27° 55' 32.5" E
12D	Cyclical	25° 59' 46.5" S	27° 55' 32.5" E
13A	Cyclical	25° 57' 16.5" S	27° 33' 47.9" E
13B	Cyclical	25° 57' 16.5" S	27° 33' 47.9" E
13D	Cyclical	25° 57' 16.5" S	27° 33' 47.9" E
14A	Cyclical	25° 59' 57.4" S	27° 46' 36.1" E
14C	Cyclical	25° 59' 57.4" S	27° 46' 36.1" E
14D	Cyclical	25° 59' 57.4" S	27° 46' 36.1" E
15A	Cyclical	25° 59' 39.9" S	27° 51' 26.8" E
15C	Cyclical	25° 59' 39.9" S	27° 51' 26.8" E
15D	Cyclical	25° 59' 39.9" S	27° 51' 26.8" E
16A	Cyclical	25° 59' 15.6" S	27° 49' 08.2" E
16B	Cyclical	25° 59' 15.6" S	27° 49' 08.2" E
16C	Cyclical	25° 59' 15.6" S	27° 49' 08.2" E
16D	Cyclical	25° 59' 15.6" S	27° 49' 08.2" E
17A	Cyclical	25° 58' 55.2" S	27° 47' 16.7" E
17B	Cyclical	25° 58' 55.2" S	27° 47' 16.7" E
17C	Cyclical	25° 58' 55.2" S	27° 47' 16.7" E
18A	Cyclical	25° 57' 23.7" S	27° 52' 25.8" E
18B	Cyclical	25° 57' 23.7" S	27° 52' 25.8" E
18C	Cyclical	25° 57' 23.7" S	27° 52' 25.8" E
19A	Cyclical	25° 55' 52.5" S	27° 52' 58.0" E
19B	Cyclical	25° 55' 52.5" S	27° 52' 58.0" E
19C	Cyclical	25° 55' 52.5" S	27° 52' 58.0" E
19D	Cyclical	25° 55' 52.5" S	27° 52' 58.0" E
21A	Cyclical	25° 53' 54.8" S	27° 35' 43.9" E
21B	Cyclical	25° 53' 54.8" S	27° 35' 43.9" E
21D	Cyclical	25° 53' 54.8" S	27° 35' 43.9" E
22A	Cyclical	25° 55' 33.8" S	27° 36' 13.3" E
22B	Cyclical	25° 55' 33.8" S	27° 36' 13.3" E
22D	Cyclical	25° 55' 33.8" S	27° 36' 13.3" E
23A	Cyclical	25° 59' 52.3" S	27° 30' 38.9" E
23B	Cyclical	25° 59' 52.3" S	27° 30' 38.9" E
23D	Cyclical	25° 59' 52.3" S	27° 30' 38.9" E
25A	Cyclical	25° 52' 51.9" S	27° 37' 17.4" E
25B	Cyclical	25° 52' 51.9" S	27° 37' 17.4" E
25D	Cyclical	25° 52' 51.9" S	27° 37' 17.4" E
26A	Cyclical	25° 46' 19.4" S	27° 57' 10.3" E
26B	Cyclical	25° 46' 19.4" S	27° 57' 10.3" E
26C	Cyclical	25° 46' 19.4" S	27° 57' 10.3" E
26D	Cyclical	25° 46' 19.4" S	27° 57' 10.3" E
27A	Cyclical	25° 55' 34.7" S	27° 32' 45.9" E
27B	Cyclical	25° 55' 34.7" S	27° 32' 45.9" E
27D	Cyclical	25° 55' 34.7" S	27° 32' 45.9" E
29A	Cyclical	25° 47' 00.1" S	27° 57' 14.6" E
29B	Cyclical	25° 47' 00.1" S	27° 57' 14.6" E
29C	Cyclical	25° 47' 00.1" S	27° 57' 14.6" E
29D	Cyclical	25° 47' 00.1" S	27° 57' 14.6" E
33A	Cyclical	25° 49' 35.8" S	27° 58' 22.7" E
33B	Cyclical	25° 49' 35.8" S	27° 58' 22.7" E
33C	Cyclical	25° 49' 35.8" S	27° 58' 22.7" E
36A	Cyclical	25° 56' 27.4" S	27° 29' 38.7" E
36B	Cyclical	25° 56' 27.4" S	27° 29' 38.7" E
36D	Cyclical	25° 56' 27.4" S	27° 29' 38.7" E
37A	Cyclical	25° 59' 06.8" S	27° 59' 00.2" E
37B	Cyclical	25° 59' 06.8" S	27° 59' 00.2" E
37C	Cyclical	25° 59' 06.8" S	27° 59' 00.2" E
38A	Cyclical	25° 53' 30.5" S	27° 28' 17.9" E
38B	Cyclical	25° 53' 30.5" S	27° 28' 17.9" E
38C	Cyclical	25° 53' 30.5" S	27° 28' 17.9" E
39B	Cyclical	25° 54' 21.5" S	27° 35' 28.1" E
39C	Cyclical	25° 54' 21.5" S	27° 35' 28.1" E
39D	Cyclical	25° 54' 21.5" S	27° 35' 28.1" E
42A	Cyclical	25° 47' 52.2" S	27° 59' 30.0" E
42B	Cyclical	25° 47' 52.2" S	27° 59' 30.0" E
42C	Cyclical	25° 47' 52.2" S	27° 59' 30.0" E
42D	Cyclical	25° 47' 52.2" S	27° 59' 30.0" E
45B	Cyclical	25° 41' 55.4" S	28° 00' 02.5" E
45C	Cyclical	25° 41' 55.4" S	28° 00' 02.5" E
45D	Cyclical	25° 41' 55.4" S	28° 00' 02.5" E
46A	Cyclical	25° 43' 10.7" S	28° 00' 09.9" E
46B	Cyclical	25° 43' 10.7" S	28° 00' 09.9" E
46D	Cyclical	25° 43' 10.7" S	28° 00' 09.9" E
47B	Cyclical	25° 57' 48.7" S	27° 53' 48.1" E
47C	Cyclical	25° 57' 48.7" S	27° 53' 48.1" E
47D	Cyclical	25° 57' 48.7" S	27° 53' 48.1" E
57A	Cyclical	25° 58' 31.1" S	27° 56' 52.1" E
57B	Cyclical	25° 58' 31.1" S	27° 56' 52.1" E
57C	Cyclical	25° 58' 31.1" S	27° 56' 52.1" E
58A	Cyclical	25° 42' 58.9" S	28° 00' 08.8" E
58B	Cyclical	25° 42' 58.9" S	28° 00' 08.8" E

58C	Cyclical	25° 42' 58.9"S	28° 00' 08.8"E
58D	Cyclical	25° 42' 58.9"S	28° 00' 08.8"E
63A	Cyclical	25° 24' 07.4"S	28° 16' 58.9"E
63B	Cyclical	25° 24' 07.4"S	28° 16' 58.9"E
63C	Cyclical	25° 24' 07.4"S	28° 16' 58.9"E
63D	Cyclical	25° 24' 07.4"S	28° 16' 58.9"E
64A	Cyclical	25° 24' 21.2"S	28° 16' 57.5"E
64B	Cyclical	25° 24' 21.2"S	28° 16' 57.5"E
64C	Cyclical	25° 24' 21.2"S	28° 16' 57.5"E
64D	Cyclical	25° 24' 21.2"S	28° 16' 57.5"E
65A	Cyclical	25° 24' 11.6"S	28° 17' 48.8"E
65B	Cyclical	25° 24' 11.6"S	28° 17' 48.8"E
65C	Cyclical	25° 24' 11.6"S	28° 17' 48.8"E
65D	Cyclical	25° 24' 11.6"S	28° 17' 48.8"E
66B	Cyclical	25° 27' 07.8"S	28° 24' 14.2"E
66C	Cyclical	25° 27' 07.8"S	28° 24' 14.2"E
66D	Cyclical	25° 27' 07.8"S	28° 24' 14.2"E
68B	Nature Reserve	25° 20' 51.7" S	28° 22' 31.7" E
68C	Nature Reserve	25° 20' 51.7" S	28° 22' 31.7" E
68D	Nature Reserve	25° 20' 51.7" S	28° 22' 31.7" E
69A	Cyclical	25° 22' 39.1"S	28° 18' 45.9"E
69B	Cyclical	25° 22' 39.1"S	28° 18' 45.9"E
69D	Cyclical	25° 22' 39.1"S	28° 18' 45.9"E
70A	Cyclical	25° 24' 08.8"S	28° 18' 03.3"E
70B	Cyclical	25° 24' 08.8"S	28° 18' 03.3"E
70D	Cyclical	25° 24' 08.8"S	28° 18' 03.3"E
71A	Cyclical	25° 24' 26.6"S	28° 15' 59.0"E
71B	Cyclical	25° 24' 26.6"S	28° 15' 59.0"E
71C	Cyclical	25° 24' 26.6"S	28° 15' 59.0"E
71D	Cyclical	25° 24' 26.6"S	28° 15' 59.0"E
72A	Cyclical	25° 24' 47.2"S	28° 21' 37.7"E
72B	Cyclical	25° 24' 47.2"S	28° 21' 37.7"E
72D	Cyclical	25° 24' 47.2"S	28° 21' 37.7"E
73A	Nature Reserve	25° 21' 19.3" S	28° 21' 08.1" E
73B	Nature Reserve	25° 21' 19.3" S	28° 21' 08.1" E
73C	Nature Reserve	25° 21' 19.3" S	28° 21' 08.1" E
76A	Cyclical	25° 30' 17.1"S	28° 13' 52.1"E
76C	Cyclical	25° 30' 17.1"S	28° 13' 52.1"E
76D	Cyclical	25° 30' 17.1"S	28° 13' 52.1"E
77A	Cyclical	25° 37' 42.0"S	28° 32' 01.8"E
77C	Cyclical	25° 37' 42.0"S	28° 32' 01.8"E
77D	Cyclical	25° 37' 42.0"S	28° 32' 01.8"E
78A	Cyclical	25° 30' 10.3" S	28° 17' 13.0" E
78B	Cyclical	25° 30' 10.3" S	28° 17' 13.0" E
78C	Cyclical	25° 30' 10.3" S	28° 17' 13.0" E
78D	Cyclical	25° 30' 10.3" S	28° 17' 13.0" E
79A	Cyclical	25° 33' 55.3"S	28° 38' 14.6"E
79B	Cyclical	25° 33' 55.3"S	28° 38' 14.6"E
79C	Cyclical	25° 33' 55.3"S	28° 38' 14.6"E
79D	Cyclical	25° 33' 55.3"S	28° 38' 14.6"E
81A	Cyclical	25° 36' 27.6"S	28° 33' 55.0"E
81B	Cyclical	25° 36' 27.6"S	28° 33' 55.0"E
81C	Cyclical	25° 36' 27.6"S	28° 33' 55.0"E
82A	Cyclical	25° 42' 18.3"S	28° 05' 20.9"E
82B	Cyclical	25° 42' 18.3"S	28° 05' 20.9"E
82C	Cyclical	25° 42' 18.3"S	28° 05' 20.9"E
82D	Cyclical	25° 42' 18.3"S	28° 05' 20.9"E
83A	Cyclical	25° 34' 31.9"S	28° 04' 29.9"E
83B	Cyclical	25° 34' 31.9"S	28° 04' 29.9"E
83C	Cyclical	25° 34' 31.9"S	28° 04' 29.9"E
83D	Cyclical	25° 34' 31.9"S	28° 04' 29.9"E
84A	Cyclical	25° 37' 40.8"S	28° 06' 12.8"E
84B	Cyclical	25° 37' 40.8"S	28° 06' 12.8"E
84C	Cyclical	25° 37' 40.8"S	28° 06' 12.8"E
84D	Cyclical	25° 37' 40.8"S	28° 06' 12.8"E
85A	Cyclical	25° 48' 18.6"S	28° 41' 48.0"E
85B	Cyclical	25° 48' 18.6"S	28° 41' 48.0"E
85C	Cyclical	25° 48' 18.6"S	28° 41' 48.0"E
85D	Cyclical	25° 48' 18.6"S	28° 41' 48.0"E
86B	Cyclical	25° 47' 35.1"S	28° 00' 35.4"E
86C	Cyclical	25° 47' 35.1"S	28° 00' 35.4"E
86D	Cyclical	25° 47' 35.1"S	28° 00' 35.4"E
87B	Cyclical	25° 46' 15.0"S	28° 01' 50.1"E
87C	Cyclical	25° 46' 15.0"S	28° 01' 50.1"E
87D	Cyclical	25° 46' 15.0"S	28° 01' 50.1"E
88A	Cyclical	25° 41' 02.5" S	28° 17' 56.2" E
88B	Cyclical	25° 41' 02.5" S	28° 17' 56.2" E
88C	Cyclical	25° 41' 02.5" S	28° 17' 56.2" E
88D	Cyclical	25° 41' 02.5" S	28° 17' 56.2" E
89A	Cyclical	25° 47' 19.6"S	28° 45' 31.7"E
89C	Cyclical	25° 47' 19.6"S	28° 45' 31.7"E
89D	Cyclical	25° 47' 19.6"S	28° 45' 31.7"E
90A	Cyclical	25° 38' 41.3"S	28° 53' 16.8"E
90B	Cyclical	25° 38' 41.3"S	28° 53' 16.8"E
90C	Cyclical	25° 38' 41.3"S	28° 53' 16.8"E
91A	Cyclical	25° 39' 02.0" S	28° 22' 21.8" E
91B	Cyclical	25° 39' 02.0" S	28° 22' 21.8" E
91C	Cyclical	25° 39' 02.0" S	28° 22' 21.8" E
92A	Cyclical	25° 36' 23.7" S	28° 24' 15.5" E
92B	Cyclical	25° 36' 23.7" S	28° 24' 15.5" E
92C	Cyclical	25° 36' 23.7" S	28° 24' 15.5" E
93A	Cyclical	25° 38' 40.9" S	28° 37' 00.4" E
93B	Cyclical	25° 38' 40.9" S	28° 37' 00.4" E
93D	Cyclical	25° 38' 40.9" S	28° 37' 00.4" E
94A	Cyclical	25° 56' 55.2" S	28° 28' 30.0" E
94B	Cyclical	25° 56' 55.2" S	28° 28' 30.0" E
94C	Cyclical	25° 56' 55.2" S	28° 28' 30.0" E
94D	Cyclical	25° 56' 55.2" S	28° 28' 30.0" E
95A	Cyclical	25° 37' 27.9" S	28° 31' 34.6" E
95B	Cyclical	25° 37' 27.9" S	28° 31' 34.6" E
95C	Cyclical	25° 37' 27.9" S	28° 31' 34.6" E
95D	Cyclical	25° 37' 27.9" S	28° 31' 34.6" E
96A	Cyclical	25° 40' 26.5" S	28° 20' 22.0" E
96B	Cyclical	25° 40' 26.5" S	28° 20' 22.0" E
96D	Cyclical	25° 40' 26.5" S	28° 20' 22.0" E
97A	Cyclical	25° 57' 01.4" S	28° 07' 24.7" E
97B	Cyclical	25° 57' 01.4" S	28° 07' 24.7" E
97C	Cyclical	25° 57' 01.4" S	28° 07' 24.7" E
97D	Cyclical	25° 57' 01.4" S	28° 07' 24.7" E
99A	Cyclical	25° 36' 35.3" S	28° 29' 52.3" E
99C	Cyclical	25° 36' 35.3" S	28° 29' 52.3" E
99D	Cyclical	25° 36' 35.3" S	28° 29' 52.3" E
100A	Cyclical	25° 55' 34.8" S	28° 02' 33.1" E
100B	Cyclical	25° 55' 34.8" S	28° 02' 33.1" E
100C	Cyclical	25° 55' 34.8" S	28° 02' 33.1" E
100D	Cyclical	25° 55' 34.8" S	28° 02' 33.1" E
101A	Cyclical	25° 53' 08.5" S	28° 03' 52.4" E
101B	Cyclical	25° 53' 08.5" S	28° 03' 52.4" E
101C	Cyclical	25° 53' 08.5" S	28° 03' 52.4" E
101D	Cyclical	25° 53' 08.5" S	28° 03' 52.4" E
102A	Cyclical	25° 57' 01.5" S	28° 01' 06.3" E
102B	Cyclical	25° 57' 01.5" S	28° 01' 06.3" E
102C	Cyclical	25° 57' 01.5" S	28° 01' 06.3" E
103A	Cyclical	25° 36' 22.0" S	28° 30' 02.2" E
103B	Cyclical	25° 36' 22.0" S	28° 30' 02.2" E

103C	Cyclical	25° 36' 22.0"S	28° 30' 02.2"E
104A	Cyclical	25° 32' 34.8"S	28° 11' 11.8"E
104B	Cyclical	25° 32' 34.8"S	28° 11' 11.8"E
104D	Cyclical	25° 32' 34.8"S	28° 11' 11.8"E
105A	Cyclical	25° 38' 23.3"S	28° 29' 21.7"E
105B	Cyclical	25° 38' 23.3"S	28° 29' 21.7"E
105D	Cyclical	25° 38' 23.3"S	28° 29' 21.7"E
106A	Cyclical	25° 35' 47.5"S	28° 11' 49.7"E
106B	Cyclical	25° 35' 47.5"S	28° 11' 49.7"E
106C	Cyclical	25° 35' 47.5"S	28° 11' 49.7"E
107B	Cyclical	25° 32' 37.4"S	28° 11' 05.0"E
107C	Cyclical	25° 32' 37.4"S	28° 11' 05.0"E
107D	Cyclical	25° 32' 37.4"S	28° 11' 05.0"E
108A	Cyclical	25° 53' 02.7"S	28° 04' 13.9"E
108B	Cyclical	25° 53' 02.7"S	28° 04' 13.9"E
108C	Cyclical	25° 53' 02.7"S	28° 04' 13.9"E
108D	Cyclical	25° 53' 02.7"S	28° 04' 13.9"E
109A	Cyclical	25° 48' 15.1"S	28° 41' 49.0"E
109B	Cyclical	25° 48' 15.1"S	28° 41' 49.0"E
109C	Cyclical	25° 48' 15.1"S	28° 41' 49.0"E
109D	Cyclical	25° 48' 15.1"S	28° 41' 49.0"E
110A	Cyclical	25° 32' 38.1"S	28° 14' 04.9"E
110B	Cyclical	25° 32' 38.1"S	28° 14' 04.9"E
110D	Cyclical	25° 32' 38.1"S	28° 14' 04.9"E
111A	Cyclical	25° 33' 15.2"S	28° 14' 45.6"E
111B	Cyclical	25° 33' 15.2"S	28° 14' 45.6"E
111C	Cyclical	25° 33' 15.2"S	28° 14' 45.6"E
112B	Cyclical	26° 00' 57.3"S	28° 06' 55.6"E
112D	Cyclical	26° 00' 57.3"S	28° 06' 55.6"E
113A	Cyclical	25° 40' 22.9"S	28° 20' 23.5"E
113C	Cyclical	25° 40' 22.9"S	28° 20' 23.5"E
113D	Cyclical	25° 40' 22.9"S	28° 20' 23.5"E
114A	Cyclical	25° 31' 59.9"S	28° 07' 39.7"E
114C	Cyclical	25° 31' 59.9"S	28° 07' 39.7"E
114D	Cyclical	25° 31' 59.9"S	28° 07' 39.7"E
115A	Cyclical	25° 32' 58.6"S	28° 08' 05.5"E
115B	Cyclical	25° 32' 58.6"S	28° 08' 05.5"E
115C	Cyclical	25° 32' 58.6"S	28° 08' 05.5"E
116A	Cyclical	25° 39' 56.8"S	28° 17' 30.9"E
116B	Cyclical	25° 39' 56.8"S	28° 17' 30.9"E
116C	Cyclical	25° 39' 56.8"S	28° 17' 30.9"E
116D	Cyclical	25° 39' 56.8"S	28° 17' 30.9"E
117A	Cyclical	25° 29' 44.0"S	28° 15' 38.9"E
117B	Cyclical	25° 29' 44.0"S	28° 15' 38.9"E
117C	Cyclical	25° 29' 44.0"S	28° 15' 38.9"E
118A	Cyclical	25° 55' 42.8"S	28° 29' 12.4"E
118B	Cyclical	25° 55' 42.8"S	28° 29' 12.4"E
118C	Cyclical	25° 55' 42.8"S	28° 29' 12.4"E
118D	Cyclical	25° 55' 42.8"S	28° 29' 12.4"E
119A	Cyclical	25° 52' 24.7"S	28° 25' 45.4"E
119B	Cyclical	25° 52' 24.7"S	28° 25' 45.4"E
119C	Cyclical	25° 52' 24.7"S	28° 25' 45.4"E
120A	Cyclical	25° 57' 48.8"S	28° 33' 29.2"E
120B	Cyclical	25° 57' 48.8"S	28° 33' 29.2"E
120C	Cyclical	25° 57' 48.8"S	28° 33' 29.2"E
121A	Cyclical	25° 58' 05.9"S	28° 33' 17.4"E
121C	Cyclical	25° 58' 05.9"S	28° 33' 17.4"E
121D	Cyclical	25° 58' 05.9"S	28° 33' 17.4"E
122B	Cyclical	25° 57' 27.9"S	28° 29' 36.5"E
122C	Cyclical	25° 57' 27.9"S	28° 29' 36.5"E
122D	Cyclical	25° 57' 27.9"S	28° 29' 36.5"E
123A	Cyclical	25° 49' 52.5"S	28° 08' 49.2"E
123B	Cyclical	25° 49' 52.5"S	28° 08' 49.2"E
123C	Cyclical	25° 49' 52.5"S	28° 08' 49.2"E
123D	Cyclical	25° 49' 52.5"S	28° 08' 49.2"E
124A	Cyclical	25° 43' 45.7"S	28° 29' 24.8"E
124B	Cyclical	25° 43' 45.7"S	28° 29' 24.8"E
124C	Cyclical	25° 43' 45.7"S	28° 29' 24.8"E
125A	Cyclical	25° 47' 18.1"S	28° 45' 02.4"E
125B	Cyclical	25° 47' 18.1"S	28° 45' 02.4"E
125C	Cyclical	25° 47' 18.1"S	28° 45' 02.4"E
125D	Cyclical	25° 47' 18.1"S	28° 45' 02.4"E
126A	Cyclical	25° 47' 34.6"S	28° 33' 24.7"E
126B	Cyclical	25° 47' 34.6"S	28° 33' 24.7"E
126D	Cyclical	25° 47' 34.6"S	28° 33' 24.7"E
127A	Cyclical	25° 30' 04.4"S	28° 15' 27.7"E
127B	Cyclical	25° 30' 04.4"S	28° 15' 27.7"E
127C	Cyclical	25° 30' 04.4"S	28° 15' 27.7"E
127D	Cyclical	25° 30' 04.4"S	28° 15' 27.7"E
128A	Cyclical	25° 49' 39.7"S	28° 23' 26.6"E
128C	Cyclical	25° 49' 39.7"S	28° 23' 26.6"E
128D	Cyclical	25° 49' 39.7"S	28° 23' 26.6"E
129A	Cyclical	25° 41' 02.3"S	28° 16' 44.7"E
129B	Cyclical	25° 41' 02.3"S	28° 16' 44.7"E
129C	Cyclical	25° 41' 02.3"S	28° 16' 44.7"E
129D	Cyclical	25° 41' 02.3"S	28° 16' 44.7"E
130A	Cyclical	25° 36' 54.2"S	28° 10' 21.8"E
130B	Cyclical	25° 36' 54.2"S	28° 10' 21.8"E
130C	Cyclical	25° 36' 54.2"S	28° 10' 21.8"E
131A	Cyclical	25° 54' 09.7"S	28° 14' 50.8"E
131B	Cyclical	25° 54' 09.7"S	28° 14' 50.8"E
131C	Cyclical	25° 54' 09.7"S	28° 14' 50.8"E
132A	Cyclical	25° 33' 04.7"S	28° 14' 45.4"E
132B	Cyclical	25° 33' 04.7"S	28° 14' 45.4"E
132D	Cyclical	25° 33' 04.7"S	28° 14' 45.4"E
133A	Cyclical	25° 37' 23.8"S	28° 02' 59.5"E
133B	Cyclical	25° 37' 23.8"S	28° 02' 59.5"E
133D	Cyclical	25° 37' 23.8"S	28° 02' 59.5"E
134A	Cyclical	25° 36' 34.0"S	28° 12' 58.0"E
134B	Cyclical	25° 36' 34.0"S	28° 12' 58.0"E
134C	Cyclical	25° 36' 34.0"S	28° 12' 58.0"E
134D	Cyclical	25° 36' 34.0"S	28° 12' 58.0"E
135A	Cyclical	25° 34' 17.9"S	28° 14' 23.9"E
135B	Cyclical	25° 34' 17.9"S	28° 14' 23.9"E
135C	Cyclical	25° 34' 17.9"S	28° 14' 23.9"E
136A	Cyclical	25° 32' 00.9"S	28° 21' 11.5"E
136B	Cyclical	25° 32' 00.9"S	28° 21' 11.5"E
136C	Cyclical	25° 32' 00.9"S	28° 21' 11.5"E
137A	Cyclical	25° 37' 31.1"S	28° 02' 11.7"E
137B	Cyclical	25° 37' 31.1"S	28° 02' 11.7"E
137C	Cyclical	25° 37' 31.1"S	28° 02' 11.7"E
137D	Cyclical	25° 37' 31.1"S	28° 02' 11.7"E
138A	Cyclical	25° 50' 25.4"S	28° 02' 35.9"E
138C	Cyclical	25° 50' 25.4"S	28° 02' 35.9"E
138D	Cyclical	25° 50' 25.4"S	28° 02' 35.9"E
139A	Cyclical	25° 50' 38.0"S	27° 59' 21.4"E
139B	Cyclical	25° 50' 38.0"S	27° 59' 21.4"E
139C	Cyclical	25° 50' 38.0"S	27° 59' 21.4"E
140A	Cyclical	25° 59' 20.3"S	28° 19' 34.2"E
140B	Cyclical	25° 59' 20.3"S	28° 19' 34.2"E
140C	Cyclical	25° 59' 20.3"S	28° 19' 34.2"E
141A	Cyclical	25° 53' 16.4"S	28° 01' 38.8"E
141C	Cyclical	25° 53' 16.4"S	28° 01' 38.8"E
141D	Cyclical	25° 53' 16.4"S	28° 01' 38.8"E
142A	Cyclical	25° 54' 34.1"S	28° 01' 36.0"E

142B	Cyclical	25° 54' 34.1" S	28° 01' 36.0" E
142C	Cyclical	25° 54' 34.1" S	28° 01' 36.0" E
142D	Cyclical	25° 54' 34.1" S	28° 01' 36.0" E
143A	Cyclical	25° 58' 54.5" S	28° 04' 34.9" E
143B	Cyclical	25° 58' 54.5" S	28° 04' 34.9" E
143C	Cyclical	25° 58' 54.5" S	28° 04' 34.9" E
143D	Cyclical	25° 58' 54.5" S	28° 04' 34.9" E
144A	Cyclical	25° 59' 50.2" S	28° 04' 33.1" E
144B	Cyclical	25° 59' 50.2" S	28° 04' 33.1" E
144C	Cyclical	25° 59' 50.2" S	28° 04' 33.1" E
144D	Cyclical	25° 59' 50.2" S	28° 04' 33.1" E
147A	Cyclical	25° 56' 16.8" S	28° 14' 36.2" E
147B	Cyclical	25° 56' 16.8" S	28° 14' 36.2" E
147C	Cyclical	25° 56' 16.8" S	28° 14' 36.2" E
148A	Cyclical	25° 54' 22.0" S	28° 01' 37.6" E
148B	Cyclical	25° 54' 22.0" S	28° 01' 37.6" E
148C	Cyclical	25° 54' 22.0" S	28° 01' 37.6" E
148D	Cyclical	25° 54' 22.0" S	28° 01' 37.6" E
150A	Cyclical	25° 40' 06.0" S	28° 34' 39.6" E
150B	Cyclical	25° 40' 06.0" S	28° 34' 39.6" E
150D	Cyclical	25° 40' 06.0" S	28° 34' 39.6" E
151A	Cyclical	25° 38' 31.9" S	28° 38' 46.9" E
151B	Cyclical	25° 38' 31.9" S	28° 38' 46.9" E
151D	Cyclical	25° 38' 31.9" S	28° 38' 46.9" E
152A	Cyclical	25° 43' 28.0" S	28° 31' 55.9" E
152B	Cyclical	25° 43' 28.0" S	28° 31' 55.9" E
152C	Cyclical	25° 43' 28.0" S	28° 31' 55.9" E
153B	Cyclical	25° 41' 39.8" S	28° 37' 29.3" E
153C	Cyclical	25° 41' 39.8" S	28° 37' 29.3" E
153D	Cyclical	25° 41' 39.8" S	28° 37' 29.3" E
154A	Cyclical	25° 37' 29.4" S	28° 53' 36.9" E
154B	Cyclical	25° 37' 29.4" S	28° 53' 36.9" E
154C	Cyclical	25° 37' 29.4" S	28° 53' 36.9" E
154D	Cyclical	25° 37' 29.4" S	28° 53' 36.9" E
155A	Cyclical	25° 45' 50.6" S	28° 38' 21.9" E
155C	Cyclical	25° 45' 50.6" S	28° 38' 21.9" E
155D	Cyclical	25° 45' 50.6" S	28° 38' 21.9" E
156A	Cyclical	25° 49' 08.3" S	28° 31' 01.2" E
156C	Cyclical	25° 49' 08.3" S	28° 31' 01.2" E
156D	Cyclical	25° 49' 08.3" S	28° 31' 01.2" E
157A	Cyclical	25° 47' 24.2" S	28° 27' 48.8" E
157B	Cyclical	25° 47' 24.2" S	28° 27' 48.8" E
157C	Cyclical	25° 47' 24.2" S	28° 27' 48.8" E
157D	Cyclical	25° 47' 24.2" S	28° 27' 48.8" E
158A	Cyclical	25° 44' 43.0" S	28° 31' 42.1" E
158B	Cyclical	25° 44' 43.0" S	28° 31' 42.1" E
158C	Cyclical	25° 44' 43.0" S	28° 31' 42.1" E
158D	Cyclical	25° 44' 43.0" S	28° 31' 42.1" E
160A	Cyclical	25° 41' 27.2" S	28° 50' 56.7" E
160B	Cyclical	25° 41' 27.2" S	28° 50' 56.7" E
160C	Cyclical	25° 41' 27.2" S	28° 50' 56.7" E
161A	Cyclical	25° 47' 01.0" S	28° 45' 39.6" E
161B	Cyclical	25° 47' 01.0" S	28° 45' 39.6" E
161C	Cyclical	25° 47' 01.0" S	28° 45' 39.6" E
162A	Cyclical	25° 56' 27.2" S	28° 14' 36.8" E
162C	Cyclical	25° 56' 27.2" S	28° 14' 36.8" E
162D	Cyclical	25° 56' 27.2" S	28° 14' 36.8" E
163A	Cyclical	25° 51' 13.0" S	28° 31' 18.8" E
163C	Cyclical	25° 51' 13.0" S	28° 31' 18.8" E
163D	Cyclical	25° 51' 13.0" S	28° 31' 18.8" E
164A	Cyclical	25° 51' 36.8" S	28° 27' 32.7" E
164B	Cyclical	25° 51' 36.8" S	28° 27' 32.7" E
164C	Cyclical	25° 51' 36.8" S	28° 27' 32.7" E
164D	Cyclical	25° 51' 36.8" S	28° 27' 32.7" E
165A	Cyclical	25° 52' 56.5" S	28° 31' 18.2" E
165B	Cyclical	25° 52' 56.5" S	28° 31' 18.2" E
165C	Cyclical	25° 52' 56.5" S	28° 31' 18.2" E
166A	Cyclical	25° 32' 20.8" S	28° 26' 42.7" E
166B	Cyclical	25° 32' 20.8" S	28° 26' 42.7" E
166C	Cyclical	25° 32' 20.8" S	28° 26' 42.7" E
167A	Cyclical	25° 34' 19.5" S	28° 24' 19.7" E
167C	Cyclical	25° 34' 19.5" S	28° 24' 19.7" E
167D	Cyclical	25° 34' 19.5" S	28° 24' 19.7" E
168A	Cyclical	25° 38' 58.5" S	28° 27' 52.7" E
168B	Cyclical	25° 38' 58.5" S	28° 27' 52.7" E
168D	Cyclical	25° 38' 58.5" S	28° 27' 52.7" E
169A	Cyclical	25° 39' 37.1" S	28° 18' 40.1" E
169B	Cyclical	25° 39' 37.1" S	28° 18' 40.1" E
169C	Cyclical	25° 39' 37.1" S	28° 18' 40.1" E
169D	Cyclical	25° 39' 37.1" S	28° 18' 40.1" E
170A	Cyclical	25° 39' 21.4" S	28° 19' 01.3" E
170B	Cyclical	25° 39' 21.4" S	28° 19' 01.3" E
170C	Cyclical	25° 39' 21.4" S	28° 19' 01.3" E
171A	Cyclical	25° 37' 51.0" S	28° 19' 39.0" E
171B	Cyclical	25° 37' 51.0" S	28° 19' 39.0" E
171C	Cyclical	25° 37' 51.0" S	28° 19' 39.0" E
171D	Cyclical	25° 37' 51.0" S	28° 19' 39.0" E
172A	Cyclical	25° 40' 38.5" S	28° 23' 15.1" E
172B	Cyclical	25° 40' 38.5" S	28° 23' 15.1" E
172C	Cyclical	25° 40' 38.5" S	28° 23' 15.1" E
172D	Cyclical	25° 40' 38.5" S	28° 23' 15.1" E
173A	Cyclical	25° 34' 34.7" S	28° 24' 05.0" E
173B	Cyclical	25° 34' 34.7" S	28° 24' 05.0" E
173C	Cyclical	25° 34' 34.7" S	28° 24' 05.0" E
174A	Cyclical	25° 31' 51.5" S	28° 27' 43.9" E
174C	Cyclical	25° 31' 51.5" S	28° 27' 43.9" E
174D	Cyclical	25° 31' 51.5" S	28° 27' 43.9" E
175A	Cyclical	25° 43' 15.5" S	28° 47' 15.1" E
175C	Cyclical	25° 43' 15.5" S	28° 47' 15.1" E
175D	Cyclical	25° 43' 15.5" S	28° 47' 15.1" E
176A	Cyclical	25° 54' 30.8" S	28° 31' 38.7" E
176B	Cyclical	25° 54' 30.8" S	28° 31' 38.7" E
176D	Cyclical	25° 54' 30.8" S	28° 31' 38.7" E
177A	Cyclical	25° 47' 31.1" S	28° 31' 07.8" E
177B	Cyclical	25° 47' 31.1" S	28° 31' 07.8" E
177C	Cyclical	25° 47' 31.1" S	28° 31' 07.8" E
177D	Cyclical	25° 47' 31.1" S	28° 31' 07.8" E
178A	Cyclical	25° 40' 17.9" S	28° 31' 52.4" E
178B	Cyclical	25° 40' 17.9" S	28° 31' 52.4" E
178C	Cyclical	25° 40' 17.9" S	28° 31' 52.4" E
178D	Cyclical	25° 40' 17.9" S	28° 31' 52.4" E
179A	Cyclical	25° 57' 18.1" S	28° 47' 45.1" E
179B	Cyclical	25° 57' 18.1" S	28° 47' 45.1" E
179C	Cyclical	25° 57' 18.1" S	28° 47' 45.1" E
180A	Cyclical	25° 43' 43.3" S	28° 48' 04.6" E
180B	Cyclical	25° 43' 43.3" S	28° 48' 04.6" E
180D	Cyclical	25° 43' 43.3" S	28° 48' 04.6" E
181A	Cyclical	25° 44' 07.9" S	28° 47' 10.2" E
181B	Cyclical	25° 44' 07.9" S	28° 47' 10.2" E
181D	Cyclical	25° 44' 07.9" S	28° 47' 10.2" E
182A	Cyclical	25° 44' 25.2" S	28° 41' 49.5" E
182C	Cyclical	25° 44' 25.2" S	28° 41' 49.5" E
182D	Cyclical	25° 44' 25.2" S	28° 41' 49.5" E
183A	Cyclical	25° 48' 16.1" S	28° 17' 45.8" E
183B	Cyclical	25° 48' 16.1" S	28° 17' 45.8" E

183C	Cyclical	25° 48' 16.1"S	28° 17' 45.8"E
183D	Cyclical	25° 48' 16.1"S	28° 17' 45.8"E
186A	Cyclical	25° 41' 08.3"S	28° 17' 32.2"E
186B	Cyclical	25° 41' 08.3"S	28° 17' 32.2"E
186C	Cyclical	25° 41' 08.3"S	28° 17' 32.2"E
186D	Cyclical	25° 41' 08.3"S	28° 17' 32.2"E
187A	Cyclical	25° 34' 46.1"S	28° 16' 50.0"E
187B	Cyclical	25° 34' 46.1"S	28° 16' 50.0"E
187C	Cyclical	25° 34' 46.1"S	28° 16' 50.0"E
187D	Cyclical	25° 34' 46.1"S	28° 16' 50.0"E
189A	Cyclical	26° 00' 00.6"S	28° 30' 46.4"E
189C	Cyclical	26° 00' 00.6"S	28° 30' 46.4"E
189D	Cyclical	26° 00' 00.6"S	28° 30' 46.4"E
190A	Cyclical	25° 48' 36.8"S	28° 22' 44.7"E
190B	Cyclical	25° 48' 36.8"S	28° 22' 44.7"E
190C	Cyclical	25° 48' 36.8"S	28° 22' 44.7"E
190D	Cyclical	25° 48' 36.8"S	28° 22' 44.7"E
191A	Cyclical	25° 48' 38.6"S	28° 23' 50.5"E
191B	Cyclical	25° 48' 38.6"S	28° 23' 50.5"E
191D	Cyclical	25° 48' 38.6"S	28° 23' 50.5"E
192A	Cyclical	25° 39' 15.1"S	28° 18' 14.9"E
192B	Cyclical	25° 39' 15.1"S	28° 18' 14.9"E
192C	Cyclical	25° 39' 15.1"S	28° 18' 14.9"E
192D	Cyclical	25° 39' 15.1"S	28° 18' 14.9"E
193A	Cyclical	25° 31' 03.7"S	28° 31' 28.7"E
193B	Cyclical	25° 31' 03.7"S	28° 31' 28.7"E
193C	Cyclical	25° 31' 03.7"S	28° 31' 28.7"E
194A	Cyclical	25° 39' 38.3"S	28° 02' 44.4"E
194B	Cyclical	25° 39' 38.3"S	28° 02' 44.4"E
194C	Cyclical	25° 39' 38.3"S	28° 02' 44.4"E
194D	Cyclical	25° 39' 38.3"S	28° 02' 44.4"E
195A	Cyclical	25° 33' 57.7"S	28° 31' 08.2"E
195B	Cyclical	25° 33' 57.7"S	28° 31' 08.2"E
195C	Cyclical	25° 33' 57.7"S	28° 31' 08.2"E
197A	Cyclical	25° 57' 14.2"S	28° 11' 07.1"E
197B	Cyclical	25° 57' 14.2"S	28° 11' 07.1"E
197C	Cyclical	25° 57' 14.2"S	28° 11' 07.1"E
197D	Cyclical	25° 57' 14.2"S	28° 11' 07.1"E
199A	Cyclical	25° 40' 58.0"S	28° 25' 05.8"E
199B	Cyclical	25° 40' 58.0"S	28° 25' 05.8"E
199C	Cyclical	25° 40' 58.0"S	28° 25' 05.8"E
199D	Cyclical	25° 40' 58.0"S	28° 25' 05.8"E
200B	Cyclical	25° 40' 59.9"S	28° 27' 36.1"E
200C	Cyclical	25° 40' 59.9"S	28° 27' 36.1"E
200D	Cyclical	25° 40' 59.9"S	28° 27' 36.1"E
201B	Cyclical	25° 52' 02.5"S	28° 37' 06.8"E
201C	Cyclical	25° 52' 02.5"S	28° 37' 06.8"E
201D	Cyclical	25° 52' 02.5"S	28° 37' 06.8"E
202A	Cyclical	25° 51' 54.2"S	28° 37' 34.6"E
202B	Cyclical	25° 51' 54.2"S	28° 37' 34.6"E
202D	Cyclical	25° 51' 54.2"S	28° 37' 34.6"E
203A	Cyclical	25° 53' 36.4"S	28° 33' 24.6"E
203B	Cyclical	25° 53' 36.4"S	28° 33' 24.6"E
203D	Cyclical	25° 53' 36.4"S	28° 33' 24.6"E
204A	Cyclical	25° 51' 32.0"S	28° 41' 25.9"E
204B	Cyclical	25° 51' 32.0"S	28° 41' 25.9"E
204D	Cyclical	25° 51' 32.0"S	28° 41' 25.9"E
205A	Cyclical	25° 53' 18.4"S	28° 33' 59.4"E
205B	Cyclical	25° 53' 18.4"S	28° 33' 59.4"E
205C	Cyclical	25° 53' 18.4"S	28° 33' 59.4"E
205D	Cyclical	25° 53' 18.4"S	28° 33' 59.4"E
206A	Cyclical	25° 56' 24.2"S	28° 20' 08.1"E
206C	Cyclical	25° 56' 24.2"S	28° 20' 08.1"E
206D	Cyclical	25° 56' 24.2"S	28° 20' 08.1"E
209B	Cyclical	25° 50' 24.1"S	28° 51' 34.9"E
209C	Cyclical	25° 50' 24.1"S	28° 51' 34.9"E
209D	Cyclical	25° 50' 24.1"S	28° 51' 34.9"E
210A	Cyclical	25° 49' 06.4"S	28° 44' 50.7"E
210B	Cyclical	25° 49' 06.4"S	28° 44' 50.7"E
210C	Cyclical	25° 49' 06.4"S	28° 44' 50.7"E
210D	Cyclical	25° 49' 06.4"S	28° 44' 50.7"E
211A	Cyclical	25° 47' 49.1"S	28° 36' 59.4"E
211B	Cyclical	25° 47' 49.1"S	28° 36' 59.4"E
211C	Cyclical	25° 47' 49.1"S	28° 36' 59.4"E
211D	Cyclical	25° 47' 49.1"S	28° 36' 59.4"E
212A	Cyclical	25° 49' 45.7"S	28° 44' 44.4"E
212B	Cyclical	25° 49' 45.7"S	28° 44' 44.4"E
212C	Cyclical	25° 49' 45.7"S	28° 44' 44.4"E
212D	Cyclical	25° 49' 45.7"S	28° 44' 44.4"E
213B	Cyclical	25° 47' 40.2"S	28° 36' 59.5"E
213C	Cyclical	25° 47' 40.2"S	28° 36' 59.5"E
213D	Cyclical	25° 47' 40.2"S	28° 36' 59.5"E
214A	Cyclical	25° 47' 41.4"S	28° 31' 04.8"E
214B	Cyclical	25° 47' 41.4"S	28° 31' 04.8"E
214C	Cyclical	25° 47' 41.4"S	28° 31' 04.8"E
214D	Cyclical	25° 47' 41.4"S	28° 31' 04.8"E
215A	Cyclical	25° 47' 42.3"S	28° 38' 26.9"E
215B	Cyclical	25° 47' 42.3"S	28° 38' 26.9"E
215D	Cyclical	25° 47' 42.3"S	28° 38' 26.9"E
216A	Cyclical	25° 45' 25.8"S	28° 21' 51.2"E
216B	Cyclical	25° 45' 25.8"S	28° 21' 51.2"E
216C	Cyclical	25° 45' 25.8"S	28° 21' 51.2"E
216D	Cyclical	25° 45' 25.8"S	28° 21' 51.2"E
217A	Cyclical	25° 30' 40.3"S	28° 31' 50.1"E
217C	Cyclical	25° 30' 40.3"S	28° 31' 50.1"E
217D	Cyclical	25° 30' 40.3"S	28° 31' 50.1"E
218A	Cyclical	25° 39' 51.3"S	28° 02' 48.1"E
218C	Cyclical	25° 39' 51.3"S	28° 02' 48.1"E
218D	Cyclical	25° 39' 51.3"S	28° 02' 48.1"E
219A	Cyclical	25° 34' 16.5"S	28° 09' 34.3"E
219C	Cyclical	25° 34' 16.5"S	28° 08' 34.3"E
219D	Cyclical	25° 34' 16.5"S	28° 08' 34.3"E
220A	Cyclical	25° 56' 23.9"S	28° 05' 42.1"E
220B	Cyclical	25° 56' 23.9"S	28° 05' 42.1"E
220C	Cyclical	25° 56' 23.9"S	28° 05' 42.1"E
220D	Cyclical	25° 56' 23.9"S	28° 05' 42.1"E
221A	Cyclical	25° 52' 56.1"S	28° 06' 23.0"E
221B	Cyclical	25° 52' 56.1"S	28° 06' 23.0"E
221C	Cyclical	25° 52' 56.1"S	28° 06' 23.0"E
221D	Cyclical	25° 52' 56.1"S	28° 06' 23.0"E
222A	Cyclical	25° 53' 29.1"S	28° 06' 16.5"E
222B	Cyclical	25° 53' 29.1"S	28° 06' 16.5"E
222C	Cyclical	25° 53' 29.1"S	28° 06' 16.5"E
222D	Cyclical	25° 53' 29.1"S	28° 06' 16.5"E
223A	Cyclical	25° 47' 57.1"S	28° 06' 32.9"E
223C	Cyclical	25° 47' 57.1"S	28° 06' 32.9"E
223D	Cyclical	25° 47' 57.1"S	28° 06' 32.9"E
224A	Cyclical	25° 57' 22.6"S	28° 08' 25.4"E
224B	Cyclical	25° 57' 22.6"S	28° 08' 25.4"E
224C	Cyclical	25° 57' 22.6"S	28° 08' 25.4"E
224D	Cyclical	25° 57' 22.6"S	28° 08' 25.4"E
225A	Cyclical	25° 58' 25.3"S	28° 14' 40.3"E
225B	Cyclical	25° 58' 25.3"S	28° 14' 40.3"E
225C	Cyclical	25° 58' 25.3"S	28° 14' 40.3"E
225D	Cyclical	25° 58' 25.3"S	28° 14' 40.3"E

226A	Cyclical	25° 46' 42.4"S	28° 20' 39.0"E
226B	Cyclical	25° 46' 42.4"S	28° 20' 39.0"E
226C	Cyclical	25° 46' 42.4"S	28° 20' 39.0"E
226D	Cyclical	25° 46' 42.4"S	28° 20' 39.0"E
228A	Cyclical	25° 36' 09.1" S	28° 09' 58.7" E
228B	Cyclical	25° 36' 09.1" S	28° 09' 58.7" E
228C	Cyclical	25° 36' 09.1" S	28° 09' 58.7" E
228D	Cyclical	25° 36' 09.1" S	28° 09' 58.7" E
229A	Cyclical	25° 50' 05.3" S	28° 06' 46.2" E
229B	Cyclical	25° 50' 05.3" S	28° 06' 46.2" E
229C	Cyclical	25° 50' 05.3" S	28° 06' 46.2" E
229D	Cyclical	25° 50' 05.3" S	28° 06' 46.2" E
230A	Cyclical	25° 50' 53.0" S	28° 06' 30.3" E
230B	Cyclical	25° 50' 53.0" S	28° 06' 30.3" E
230C	Cyclical	25° 50' 53.0" S	28° 06' 30.3" E
230D	Cyclical	25° 50' 53.0" S	28° 06' 30.3" E
231B	Cyclical	25° 45' 36.6" S	28° 24' 52.1" E
231C	Cyclical	25° 45' 36.6" S	28° 24' 52.1" E
231D	Cyclical	25° 45' 36.6" S	28° 24' 52.1" E
232A	Cyclical	25° 46' 16.8" S	28° 26' 47.5" E
232B	Cyclical	25° 46' 16.8" S	28° 26' 47.5" E
232C	Cyclical	25° 46' 16.8" S	28° 26' 47.5" E
232D	Cyclical	25° 46' 16.8" S	28° 26' 47.5" E
233B	Cyclical	25° 46' 22.9" S	28° 27' 07.1" E
233C	Cyclical	25° 46' 22.9" S	28° 27' 07.1" E
233D	Cyclical	25° 46' 22.9" S	28° 27' 07.1" E
234B	Cyclical	25° 46' 03.9" S	28° 26' 05.5" E
234C	Cyclical	25° 46' 03.9" S	28° 26' 05.5" E
234D	Cyclical	25° 46' 03.9" S	28° 26' 05.5" E
235A	Cyclical	25° 45' 04.8" S	28° 22' 06.9" E
235B	Cyclical	25° 45' 04.8" S	28° 22' 06.9" E
235C	Cyclical	25° 45' 04.8" S	28° 22' 06.9" E
235D	Cyclical	25° 45' 04.8" S	28° 22' 06.9" E
236A	Cyclical	25° 46' 17.8" S	28° 26' 03.1" E
236B	Cyclical	25° 46' 17.8" S	28° 26' 03.1" E
236C	Cyclical	25° 46' 17.8" S	28° 26' 03.1" E
236D	Cyclical	25° 46' 17.8" S	28° 26' 03.1" E
237A	Cyclical	25° 37' 12.7" S	28° 02' 20.4" E
237B	Cyclical	25° 37' 12.7" S	28° 02' 20.4" E
237D	Cyclical	25° 37' 12.7" S	28° 02' 20.4" E
238A	Cyclical	25° 56' 28.7" S	28° 13' 58.6" E
238B	Cyclical	25° 56' 28.7" S	28° 13' 58.6" E
238C	Cyclical	25° 56' 28.7" S	28° 13' 58.6" E
238D	Cyclical	25° 56' 28.7" S	28° 13' 58.6" E
239A	Cyclical	25° 37' 43.9" S	28° 06' 33.4" E
239B	Cyclical	25° 37' 43.9" S	28° 06' 33.4" E
239C	Cyclical	25° 37' 43.9" S	28° 06' 33.4" E
239D	Cyclical	25° 37' 43.9" S	28° 06' 33.4" E
241A	Cyclical	25° 49' 17.0" S	28° 15' 38.5" E
241B	Cyclical	25° 49' 17.0" S	28° 15' 38.5" E
241C	Cyclical	25° 49' 17.0" S	28° 15' 38.5" E
241D	Cyclical	25° 49' 17.0" S	28° 15' 38.5" E
242B	Cyclical	25° 34' 50.2" S	28° 08' 08.1" E
242C	Cyclical	25° 34' 50.2" S	28° 08' 08.1" E
242D	Cyclical	25° 34' 50.2" S	28° 08' 08.1" E
243A	Cyclical	25° 44' 36.8" S	28° 31' 40.9" E
243B	Cyclical	25° 44' 36.8" S	28° 31' 40.9" E
243C	Cyclical	25° 44' 36.8" S	28° 31' 40.9" E
244A	Cyclical	25° 43' 31.5" S	28° 47' 12.3" E
244B	Cyclical	25° 43' 31.5" S	28° 47' 12.3" E
244C	Cyclical	25° 43' 31.5" S	28° 47' 12.3" E
245A	Cyclical	25° 50' 56.1" S	28° 44' 05.0" E
245B	Cyclical	25° 50' 56.1" S	28° 44' 05.0" E
245C	Cyclical	25° 50' 56.1" S	28° 44' 05.0" E
246A	Cyclical	25° 58' 29.0" S	28° 14' 32.1" E
246B	Cyclical	25° 58' 29.0" S	28° 14' 32.1" E
246D	Cyclical	25° 58' 29.0" S	28° 14' 32.1" E
247A	Cyclical	25° 56' 35.0" S	28° 08' 38.9" E
247B	Cyclical	25° 56' 35.0" S	28° 08' 38.9" E
247C	Cyclical	25° 56' 35.0" S	28° 08' 38.9" E
248A	Cyclical	25° 47' 47.4" S	28° 09' 51.4" E
248B	Cyclical	25° 47' 47.4" S	28° 09' 51.4" E
248C	Cyclical	25° 47' 47.4" S	28° 09' 51.4" E
248D	Cyclical	25° 47' 47.4" S	28° 09' 51.4" E
249A	Cyclical	25° 47' 53.2" S	28° 19' 01.4" E
249B	Cyclical	25° 47' 53.2" S	28° 19' 01.4" E
249C	Cyclical	25° 47' 53.2" S	28° 19' 01.4" E
249D	Cyclical	25° 47' 53.2" S	28° 19' 01.4" E
251A	Cyclical	25° 35' 56.5" S	28° 24' 16.6" E
251C	Cyclical	25° 35' 56.5" S	28° 24' 16.6" E
251D	Cyclical	25° 35' 56.5" S	28° 24' 16.6" E
253A	Cyclical	25° 29' 44.9" S	28° 13' 02.4" E
253B	Cyclical	25° 29' 44.9" S	28° 13' 02.4" E
253C	Cyclical	25° 29' 44.9" S	28° 13' 02.4" E
253D	Cyclical	25° 29' 44.9" S	28° 13' 02.4" E
259A	Cyclical	25° 29' 59.0" S	28° 14' 17.2" E
259B	Cyclical	25° 29' 59.0" S	28° 14' 17.2" E
259D	Cyclical	25° 29' 59.0" S	28° 14' 17.2" E
263A	Cyclical	25° 55' 03.5" S	28° 01' 27.6" E
263B	Cyclical	25° 55' 03.5" S	28° 01' 27.6" E
263C	Cyclical	25° 55' 03.5" S	28° 01' 27.6" E
263D	Cyclical	25° 55' 03.5" S	28° 01' 27.6" E
267A	Cyclical	25° 53' 05.1" S	28° 15' 23.6" E
267B	Cyclical	25° 53' 05.1" S	28° 15' 23.6" E
267C	Cyclical	25° 53' 05.1" S	28° 15' 23.6" E
268A	Cyclical	25° 54' 12.6" S	28° 15' 32.5" E
268B	Cyclical	25° 54' 12.6" S	28° 15' 32.5" E
268D	Cyclical	25° 54' 12.6" S	28° 15' 32.5" E
271A	Cyclical	25° 49' 15.4" S	28° 11' 40.7" E
271B	Cyclical	25° 49' 15.4" S	28° 11' 40.7" E
271C	Cyclical	25° 49' 15.4" S	28° 11' 40.7" E
271D	Cyclical	25° 49' 15.4" S	28° 11' 40.7" E
272A	Cyclical	25° 49' 33.6" S	28° 09' 24.9" E
272B	Cyclical	25° 49' 33.6" S	28° 09' 24.9" E
272C	Cyclical	25° 49' 33.6" S	28° 09' 24.9" E
272D	Cyclical	25° 49' 33.6" S	28° 09' 24.9" E
273A	Cyclical	25° 49' 53.2" S	28° 09' 33.2" E
273B	Cyclical	25° 49' 53.2" S	28° 09' 33.2" E
273C	Cyclical	25° 49' 53.2" S	28° 09' 33.2" E
273D	Cyclical	25° 49' 53.2" S	28° 09' 33.2" E
275A	Cyclical	25° 51' 29.4" S	28° 30' 03.3" E
275B	Cyclical	25° 51' 29.4" S	28° 30' 03.3" E
275D	Cyclical	25° 51' 29.4" S	28° 30' 03.3" E
276A	Cyclical	25° 51' 05.8" S	28° 41' 28.2" E
276B	Cyclical	25° 51' 05.8" S	28° 41' 28.2" E
276C	Cyclical	25° 51' 05.8" S	28° 41' 28.2" E
277A	Cyclical	25° 46' 20.3" S	28° 41' 38.5" E
277B	Cyclical	25° 46' 20.3" S	28° 41' 38.5" E
277C	Cyclical	25° 46' 20.3" S	28° 41' 38.5" E
280A	Cyclical	25° 35' 49.6" S	28° 22' 47.3" E
280B	Cyclical	25° 35' 49.6" S	28° 22' 47.3" E
280C	Cyclical	25° 35' 49.6" S	28° 22' 47.3" E
281A	Cyclical	25° 39' 39.8" S	28° 11' 29.5" E
281C	Cyclical	25° 39' 39.8" S	28° 11' 29.5" E
281D	Cyclical	25° 39' 39.8" S	28° 11' 29.5" E

287A	Cyclical	25° 36' 52.9"S	28° 02' 20.0"E
287B	Cyclical	25° 36' 52.9"S	28° 02' 20.0"E
287C	Cyclical	25° 36' 52.9"S	28° 02' 20.0"E
287D	Cyclical	25° 36' 52.9"S	28° 02' 20.0"E
288A	Cyclical	25° 34' 00.0"S	28° 03' 21.1"E
288B	Cyclical	25° 34' 00.0"S	28° 03' 21.1"E
288C	Cyclical	25° 34' 00.0"S	28° 03' 21.1"E
288D	Cyclical	25° 34' 00.0"S	28° 03' 21.1"E
289A	Cyclical	25° 55' 56.9"S	28° 15' 50.7"E
289B	Cyclical	25° 55' 56.9"S	28° 15' 50.7"E
289C	Cyclical	25° 55' 56.9"S	28° 15' 50.7"E
289D	Cyclical	25° 55' 56.9"S	28° 15' 50.7"E
291A	Cyclical	25° 40' 44.1" S	28° 32' 10.2" E
291C	Cyclical	25° 40' 44.1" S	28° 32' 10.2" E
291D	Cyclical	25° 40' 44.1" S	28° 32' 10.2" E
292A	Cyclical	25° 29' 59.5"S	28° 15' 05.5"E
292B	Cyclical	25° 29' 59.5"S	28° 15' 05.5"E
292C	Cyclical	25° 29' 59.5"S	28° 15' 05.5"E
292D	Cyclical	25° 29' 59.5"S	28° 15' 05.5"E
295A	Cyclical	25° 48' 39.1" S	28° 36' 58.3" E
295C	Cyclical	25° 48' 39.1" S	28° 36' 58.3" E
295D	Cyclical	25° 48' 39.1" S	28° 36' 58.3" E
296A	Cyclical	25° 48' 16.5" S	28° 30' 51.6" E
296C	Cyclical	25° 48' 16.5" S	28° 30' 51.6" E
296D	Cyclical	25° 48' 16.5" S	28° 30' 51.6" E
297A	Cyclical	25° 33' 09.9"S	28° 05' 23.4"E
297B	Cyclical	25° 33' 09.9"S	28° 05' 23.4"E
297D	Cyclical	25° 33' 09.9"S	28° 05' 23.4"E
299A	Cyclical	25° 44' 08.1"S	28° 42' 00.9"E
299B	Cyclical	25° 44' 08.1"S	28° 42' 00.9"E
299C	Cyclical	25° 44' 08.1"S	28° 42' 00.9"E
302A	Cyclical	26° 00' 47.0" S	28° 09' 45.2" E
302B	Cyclical	26° 00' 47.0" S	28° 09' 45.2" E
302C	Cyclical	26° 00' 47.0" S	28° 09' 45.2" E
302D	Cyclical	26° 00' 47.0" S	28° 09' 45.2" E
305A	Cyclical	25° 42' 10.8"S	28° 07' 50.1"E
305B	Cyclical	25° 42' 10.8"S	28° 07' 50.1"E
314A	Cyclical	25° 36' 29.2" S	29° 00' 23.0" E
314B	Cyclical	25° 36' 29.2" S	29° 00' 23.0" E
314D	Cyclical	25° 36' 29.2" S	29° 00' 23.0" E
315A	Cyclical	26° 27' 24.5" S	27° 20' 58.5" E
315C	Cyclical	26° 27' 24.5" S	27° 20' 58.5" E
315D	Cyclical	26° 27' 24.5" S	27° 20' 58.5" E
316B	Cyclical	26° 18' 48.4" S	27° 26' 24.0" E
316C	Cyclical	26° 18' 48.4" S	27° 26' 24.0" E
316D	Cyclical	26° 18' 48.4" S	27° 26' 24.0" E
319A	Cyclical	26° 22' 38.7" S	27° 17' 26.1" E
319B	Cyclical	26° 22' 38.7" S	27° 17' 26.1" E
319D	Cyclical	26° 22' 38.7" S	27° 17' 26.1" E
320A	Cyclical	26° 19' 26.8" S	27° 23' 05.0" E
320B	Cyclical	26° 19' 26.8" S	27° 23' 05.0" E
320C	Cyclical	26° 19' 26.8" S	27° 23' 05.0" E
322A	Cyclical	26° 13' 07.4" S	27° 30' 14.5" E
322C	Cyclical	26° 13' 07.4" S	27° 30' 14.5" E
322D	Cyclical	26° 13' 07.4" S	27° 30' 14.5" E
323A	Cyclical	26° 11' 54.4" S	27° 33' 00.9" E
323B	Cyclical	26° 11' 54.4" S	27° 33' 00.9" E
323C	Cyclical	26° 11' 54.4" S	27° 33' 00.9" E
325B	Cyclical	26° 11' 54.2" S	27° 33' 25.1" E
325C	Cyclical	26° 11' 54.2" S	27° 33' 25.1" E
325D	Cyclical	26° 11' 54.2" S	27° 33' 25.1" E
326A	Cyclical	26° 24' 41.3" S	27° 42' 50.3" E
326C	Cyclical	26° 24' 41.3" S	27° 42' 50.3" E
326D	Cyclical	26° 24' 41.3" S	27° 42' 50.3" E
327A	Cyclical	26° 15' 41.7" S	27° 45' 36.5" E
327B	Cyclical	26° 15' 41.7" S	27° 45' 36.5" E
327C	Cyclical	26° 15' 41.7" S	27° 45' 36.5" E
328A	Cyclical	26° 14' 35.7" S	27° 48' 15.2" E
328B	Cyclical	26° 14' 35.7" S	27° 48' 15.2" E
328C	Cyclical	26° 14' 35.7" S	27° 48' 15.2" E
328D	Cyclical	26° 14' 35.7" S	27° 48' 15.2" E
329A	Cyclical	26° 11' 09.8" S	27° 26' 26.8" E
329B	Cyclical	26° 11' 09.8" S	27° 26' 26.8" E
329C	Cyclical	26° 11' 09.8" S	27° 26' 26.8" E
329D	Cyclical	26° 11' 09.8" S	27° 26' 26.8" E
330A	Cyclical	26° 01' 40.6" S	27° 26' 20.7" E
330B	Cyclical	26° 01' 40.6" S	27° 26' 20.7" E
330C	Cyclical	26° 01' 40.6" S	27° 26' 20.7" E
330D	Cyclical	26° 01' 40.6" S	27° 26' 20.7" E
331B	Cyclical	26° 21' 36.6" S	27° 30' 27.9" E
331C	Cyclical	26° 21' 36.6" S	27° 30' 27.9" E
331D	Cyclical	26° 21' 36.6" S	27° 30' 27.9" E
332A	Cyclical	26° 22' 03.9" S	27° 36' 16.8" E
332B	Cyclical	26° 22' 03.9" S	27° 36' 16.8" E
332D	Cyclical	26° 22' 03.9" S	27° 36' 16.8" E
333B	Cyclical	26° 21' 51.1" S	27° 33' 08.4" E
333C	Cyclical	26° 21' 51.1" S	27° 33' 08.4" E
333D	Cyclical	26° 21' 51.1" S	27° 33' 08.4" E
334A	Cyclical	26° 22' 27.6" S	27° 24' 23.6" E
334B	Cyclical	26° 22' 27.6" S	27° 24' 23.6" E
334C	Cyclical	26° 22' 27.6" S	27° 24' 23.6" E
334D	Cyclical	26° 22' 27.6" S	27° 24' 23.6" E
335A	Cyclical	26° 24' 49.3" S	27° 14' 04.7" E
335B	Cyclical	26° 24' 49.3" S	27° 14' 04.7" E
335C	Cyclical	26° 24' 49.3" S	27° 14' 04.7" E
336A	Cyclical	26° 23' 59.7" S	27° 17' 34.9" E
336B	Cyclical	26° 23' 59.7" S	27° 17' 34.9" E
336C	Cyclical	26° 23' 59.7" S	27° 17' 34.9" E
336D	Cyclical	26° 23' 59.7" S	27° 17' 34.9" E
337A	Cyclical	26° 06' 40.5" S	27° 37' 16.5" E
337B	Cyclical	26° 06' 40.5" S	27° 37' 16.5" E
337C	Cyclical	26° 06' 40.5" S	27° 37' 16.5" E
338B	Cyclical	26° 09' 17.3" S	27° 33' 11.6" E
338C	Cyclical	26° 09' 17.3" S	27° 33' 11.6" E
338D	Cyclical	26° 09' 17.3" S	27° 33' 11.6" E
339A	Cyclical	26° 04' 35.1" S	27° 38' 44.4" E
339C	Cyclical	26° 04' 35.1" S	27° 38' 44.4" E
339D	Cyclical	26° 04' 35.1" S	27° 38' 44.4" E
341A	Cyclical	26° 07' 56.8" S	27° 35' 30.5" E
341B	Cyclical	26° 07' 56.8" S	27° 35' 30.5" E
341C	Cyclical	26° 07' 56.8" S	27° 35' 30.5" E
341D	Cyclical	26° 07' 56.8" S	27° 35' 30.5" E
342A	Cyclical	26° 04' 32.0" S	27° 38' 50.4" E
342B	Cyclical	26° 04' 32.0" S	27° 38' 50.4" E
342C	Cyclical	26° 04' 32.0" S	27° 38' 50.4" E
342D	Cyclical	26° 04' 32.0" S	27° 38' 50.4" E
343A	Cyclical	26° 06' 11.0" S	27° 41' 34.7" E
343C	Cyclical	26° 06' 11.0" S	27° 41' 34.7" E
343D	Cyclical	26° 06' 11.0" S	27° 41' 34.7" E
345A	Cyclical	26° 20' 29.8" S	27° 40' 20.8" E
345B	Cyclical	26° 20' 29.8" S	27° 40' 20.8" E
345C	Cyclical	26° 20' 29.8" S	27° 40' 20.8" E
345D	Cyclical	26° 20' 29.8" S	27° 40' 20.8" E
346A	Cyclical	26° 18' 01.4" S	27° 55' 21.1" E
346C	Cyclical	26° 18' 01.4" S	27° 55' 21.1" E

346D	Cyclical	26° 18' 01.4" S	27° 55' 21.1" E
347B	Cyclical	26° 22' 13.2" S	27° 36' 05.7" E
347C	Cyclical	26° 22' 13.2" S	27° 36' 05.7" E
347D	Cyclical	26° 22' 13.2" S	27° 36' 05.7" E
348B	Cyclical	26° 24' 40.2" S	27° 32' 59.0" E
348C	Cyclical	26° 24' 40.2" S	27° 32' 59.0" E
348D	Cyclical	26° 24' 40.2" S	27° 32' 59.0" E
349A	Cyclical	26° 28' 45.7" S	27° 46' 45.6" E
349B	Cyclical	26° 28' 45.7" S	27° 46' 45.6" E
349C	Cyclical	26° 28' 45.7" S	27° 46' 45.6" E
350A	Cyclical	26° 28' 53.5" S	27° 46' 39.6" E
350B	Cyclical	26° 28' 53.5" S	27° 46' 39.6" E
350C	Cyclical	26° 28' 53.5" S	27° 46' 39.6" E
350D	Cyclical	26° 28' 53.5" S	27° 46' 39.6" E
351A	Cyclical	26° 01' 17.6" S	27° 26' 32.0" E
351B	Cyclical	26° 01' 17.6" S	27° 26' 32.0" E
351C	Cyclical	26° 01' 17.6" S	27° 26' 32.0" E
353B	Cyclical	26° 01' 34.9" S	27° 51' 54.6" E
353C	Cyclical	26° 01' 34.9" S	27° 51' 54.6" E
353D	Cyclical	26° 01' 34.9" S	27° 51' 54.6" E
354A	Cyclical	26° 04' 55.3" S	27° 55' 54.1" E
354B	Cyclical	26° 04' 55.3" S	27° 55' 54.1" E
354C	Cyclical	26° 04' 55.3" S	27° 55' 54.1" E
354D	Cyclical	26° 04' 55.3" S	27° 55' 54.1" E
355A	Cyclical	26° 03' 37.3" S	27° 54' 05.3" E
355B	Cyclical	26° 03' 37.3" S	27° 54' 05.3" E
355C	Cyclical	26° 03' 37.3" S	27° 54' 05.3" E
355D	Cyclical	26° 03' 37.3" S	27° 54' 05.3" E
357A	Cyclical	26° 29' 35.7" S	27° 41' 06.8" E
357B	Cyclical	26° 29' 35.7" S	27° 41' 06.8" E
357C	Cyclical	26° 29' 35.7" S	27° 41' 06.8" E
358B	Cyclical	26° 24' 58.2" S	27° 41' 59.4" E
358C	Cyclical	26° 24' 58.2" S	27° 41' 59.4" E
358D	Cyclical	26° 24' 58.2" S	27° 41' 59.4" E
359A	Cyclical	26° 24' 47.7" S	27° 42' 31.3" E
359B	Cyclical	26° 24' 47.7" S	27° 42' 31.3" E
359D	Cyclical	26° 24' 47.7" S	27° 42' 31.3" E
361A	Cyclical	26° 04' 10.7" S	27° 35' 11.6" E
361B	Cyclical	26° 04' 10.7" S	27° 35' 11.6" E
361C	Cyclical	26° 04' 10.7" S	27° 35' 11.6" E
361D	Cyclical	26° 04' 10.7" S	27° 35' 11.6" E
362A	Cyclical	26° 20' 30.3" S	27° 54' 00.8" E
362B	Cyclical	26° 20' 30.3" S	27° 54' 00.8" E
362C	Cyclical	26° 20' 30.3" S	27° 54' 00.8" E
362D	Cyclical	26° 20' 30.3" S	27° 54' 00.8" E
364A	Cyclical	26° 08' 47.6" S	27° 37' 29.0" E
364B	Cyclical	26° 08' 47.6" S	27° 37' 29.0" E
364C	Cyclical	26° 08' 47.6" S	27° 37' 29.0" E
364D	Cyclical	26° 08' 47.6" S	27° 37' 29.0" E
366A	Cyclical	26° 29' 24.3" S	27° 50' 05.4" E
366B	Cyclical	26° 29' 24.3" S	27° 50' 05.4" E
366C	Cyclical	26° 29' 24.3" S	27° 50' 05.4" E
366D	Cyclical	26° 29' 24.3" S	27° 50' 05.4" E
367A	Cyclical	26° 25' 08.8" S	27° 35' 29.7" E
367B	Cyclical	26° 25' 08.8" S	27° 35' 29.7" E
367C	Cyclical	26° 25' 08.8" S	27° 35' 29.7" E
368A	Cyclical	26° 24' 32.1" S	27° 33' 09.6" E
368B	Cyclical	26° 24' 32.1" S	27° 33' 09.6" E
368D	Cyclical	26° 24' 32.1" S	27° 33' 09.6" E
369A	Cyclical	26° 29' 39.9" S	27° 41' 05.3" E
369C	Cyclical	26° 29' 39.9" S	27° 41' 05.3" E
369D	Cyclical	26° 29' 39.9" S	27° 41' 05.3" E
370A	Cyclical	26° 21' 09.9" S	27° 57' 26.4" E
370C	Cyclical	26° 21' 09.9" S	27° 57' 26.4" E
370D	Cyclical	26° 21' 09.9" S	27° 57' 26.4" E
371A	Cyclical	26° 22' 00.0" S	27° 56' 37.7" E
371B	Cyclical	26° 22' 00.0" S	27° 56' 37.7" E
371C	Cyclical	26° 22' 00.0" S	27° 56' 37.7" E
372A	Cyclical	26° 25' 01.2" S	27° 53' 28.3" E
372B	Cyclical	26° 25' 01.2" S	27° 53' 28.3" E
372C	Cyclical	26° 25' 01.2" S	27° 53' 28.3" E
372D	Cyclical	26° 25' 01.2" S	27° 53' 28.3" E
373A	Cyclical	26° 27' 01.6" S	27° 56' 58.4" E
373C	Cyclical	26° 27' 01.6" S	27° 56' 58.4" E
373D	Cyclical	26° 27' 01.6" S	27° 56' 58.4" E
374A	Cyclical	26° 05' 26.5" S	27° 38' 14.0" E
374B	Cyclical	26° 05' 26.5" S	27° 38' 14.0" E
374C	Cyclical	26° 05' 26.5" S	27° 38' 14.0" E
375A	Cyclical	26° 25' 27.8" S	27° 40' 42.6" E
375B	Cyclical	26° 25' 27.8" S	27° 40' 42.6" E
375D	Cyclical	26° 25' 27.8" S	27° 40' 42.6" E
376A	Cyclical	26° 22' 39.7" S	27° 58' 35.6" E
376B	Cyclical	26° 22' 39.7" S	27° 58' 35.6" E
376C	Cyclical	26° 22' 39.7" S	27° 58' 35.6" E
376D	Cyclical	26° 22' 39.7" S	27° 58' 35.6" E
377A	Cyclical	26° 27' 29.8" S	27° 37' 51.6" E
377B	Cyclical	26° 27' 29.8" S	27° 37' 51.6" E
377D	Cyclical	26° 27' 29.8" S	27° 37' 51.6" E
378A	Cyclical	26° 27' 18.4" S	27° 59' 26.6" E
378B	Cyclical	26° 27' 18.4" S	27° 59' 26.6" E
378C	Cyclical	26° 27' 18.4" S	27° 59' 26.6" E
379A	Cyclical	26° 25' 43.3" S	27° 57' 31.3" E
379B	Cyclical	26° 25' 43.3" S	27° 57' 31.3" E
379C	Cyclical	26° 25' 43.3" S	27° 57' 31.3" E
380A	Cyclical	26° 23' 54.5" S	27° 38' 32.1" E
380C	Cyclical	26° 23' 54.5" S	27° 38' 32.1" E
380D	Cyclical	26° 23' 54.5" S	27° 38' 32.1" E
381A	Cyclical	26° 21' 44.5" S	27° 40' 05.4" E
381C	Cyclical	26° 21' 44.5" S	27° 40' 05.4" E
381D	Cyclical	26° 21' 44.5" S	27° 40' 05.4" E
382A	Cyclical	26° 25' 34.9" S	27° 37' 54.6" E
382C	Cyclical	26° 25' 34.9" S	27° 37' 54.6" E
382D	Cyclical	26° 25' 34.9" S	27° 37' 54.6" E
383A	Cyclical	26° 24' 00.9" S	27° 42' 14.3" E
383B	Cyclical	26° 24' 00.9" S	27° 42' 14.3" E
383C	Cyclical	26° 24' 00.9" S	27° 42' 14.3" E
384B	Cyclical	26° 21' 18.6" S	27° 45' 22.6" E
384C	Cyclical	26° 21' 18.6" S	27° 45' 22.6" E
384D	Cyclical	26° 21' 18.6" S	27° 45' 22.6" E
386A	Cyclical	26° 15' 33.3" S	27° 30' 26.2" E
386B	Cyclical	26° 15' 33.3" S	27° 30' 26.2" E
386C	Cyclical	26° 15' 33.3" S	27° 30' 26.2" E
386D	Cyclical	26° 15' 33.3" S	27° 30' 26.2" E
388A	Cyclical	26° 24' 17.3" S	27° 57' 33.9" E
388B	Cyclical	26° 24' 17.3" S	27° 57' 33.9" E
388C	Cyclical	26° 24' 17.3" S	27° 57' 33.9" E
388D	Cyclical	26° 24' 17.3" S	27° 57' 33.9" E
389B	Cyclical	26° 22' 43.3" S	27° 57' 26.5" E
389C	Cyclical	26° 22' 43.3" S	27° 57' 26.5" E
389D	Cyclical	26° 22' 43.3" S	27° 57' 26.5" E
390A	Cyclical	26° 01' 54.0" S	27° 50' 20.1" E
390C	Cyclical	26° 01' 54.0" S	27° 50' 20.1" E
391A	Cyclical	26° 26' 07.9" S	27° 44' 02.0" E
391B	Cyclical	26° 26' 07.9" S	27° 44' 02.0" E
391C	Cyclical	26° 26' 07.9" S	27° 44' 02.0" E

392A	Cyclical	26° 23' 43.7" S	27° 38' 51.0" E
392B	Cyclical	26° 23' 43.7" S	27° 38' 51.0" E
392C	Cyclical	26° 23' 43.7" S	27° 38' 51.0" E
394A	Cyclical	26° 06' 48.9" S	27° 39' 59.7" E
394B	Cyclical	26° 06' 48.9" S	27° 39' 59.7" E
394C	Cyclical	26° 06' 48.9" S	27° 39' 59.7" E
394D	Cyclical	26° 06' 48.9" S	27° 39' 59.7" E
395A	Cyclical	26° 06' 51.2" S	27° 39' 06.7" E
395B	Cyclical	26° 06' 51.2" S	27° 39' 06.7" E
395C	Cyclical	26° 06' 51.2" S	27° 39' 06.7" E
395D	Cyclical	26° 06' 51.2" S	27° 39' 06.7" E
396A	Cyclical	26° 01' 22.3" S	27° 43' 24.6" E
396B	Cyclical	26° 01' 22.3" S	27° 43' 24.6" E
396C	Cyclical	26° 01' 22.3" S	27° 43' 24.6" E
396D	Cyclical	26° 01' 22.3" S	27° 43' 24.6" E
397A	Cyclical	26° 15' 42.4" S	27° 34' 30.9" E
397B	Cyclical	26° 15' 42.4" S	27° 34' 30.9" E
397D	Cyclical	26° 15' 42.4" S	27° 34' 30.9" E
398B	Cyclical	26° 04' 57.2" S	27° 39' 31.0" E
398C	Cyclical	26° 04' 57.2" S	27° 39' 31.0" E
398D	Cyclical	26° 04' 57.2" S	27° 39' 31.0" E
399A	Cyclical	26° 26' 18.2" S	27° 52' 38.6" E
399B	Cyclical	26° 26' 18.2" S	27° 52' 38.6" E
399C	Cyclical	26° 26' 18.2" S	27° 52' 38.6" E
400A	Cyclical	26° 27' 58.3" S	27° 52' 21.8" E
400B	Cyclical	26° 27' 58.3" S	27° 52' 21.8" E
400C	Cyclical	26° 27' 58.3" S	27° 52' 21.8" E
400D	Cyclical	26° 27' 58.3" S	27° 52' 21.8" E
401A	Cyclical	26° 14' 39.9" S	27° 43' 42.0" E
401C	Cyclical	26° 14' 39.9" S	27° 43' 42.0" E
401D	Cyclical	26° 14' 39.9" S	27° 43' 42.0" E
402A	Cyclical	26° 15' 46.6" S	27° 40' 55.1" E
402B	Cyclical	26° 15' 46.6" S	27° 40' 55.1" E
402C	Cyclical	26° 15' 46.6" S	27° 40' 55.1" E
402D	Cyclical	26° 15' 46.6" S	27° 40' 55.1" E
404A	Cyclical	26° 19' 16.5" S	27° 59' 22.8" E
404B	Cyclical	26° 19' 16.5" S	27° 59' 22.8" E
404C	Cyclical	26° 19' 16.5" S	27° 59' 22.8" E
405A	Cyclical	26° 20' 37.0" S	27° 59' 04.9" E
405B	Cyclical	26° 20' 37.0" S	27° 59' 04.9" E
405C	Cyclical	26° 20' 37.0" S	27° 59' 04.9" E
405D	Cyclical	26° 20' 37.0" S	27° 59' 04.9" E
407B	Cyclical	26° 00' 20.4" S	27° 54' 34.7" E
407C	Cyclical	26° 00' 20.4" S	27° 54' 34.7" E
407D	Cyclical	26° 00' 20.4" S	27° 54' 34.7" E
409A	Cyclical	26° 02' 37.6" S	27° 57' 19.0" E
409B	Cyclical	26° 02' 37.6" S	27° 57' 19.0" E
409C	Cyclical	26° 02' 37.6" S	27° 57' 19.0" E
409D	Cyclical	26° 02' 37.6" S	27° 57' 19.0" E
410A	Cyclical	26° 25' 34.4" S	27° 52' 41.1" E
410B	Cyclical	26° 25' 34.4" S	27° 52' 41.1" E
410C	Cyclical	26° 25' 34.4" S	27° 52' 41.1" E
410D	Cyclical	26° 25' 34.4" S	27° 52' 41.1" E
411A	Cyclical	26° 26' 31.8" S	27° 52' 22.3" E
411B	Cyclical	26° 26' 31.8" S	27° 52' 22.3" E
411C	Cyclical	26° 26' 31.8" S	27° 52' 22.3" E
411D	Cyclical	26° 26' 31.8" S	27° 52' 22.3" E
413A	Cyclical	26° 03' 42.0" S	27° 49' 57.3" E
413B	Cyclical	26° 03' 42.0" S	27° 49' 57.3" E
413C	Cyclical	26° 03' 42.0" S	27° 49' 57.3" E
413D	Cyclical	26° 03' 42.0" S	27° 49' 57.3" E
414A	Cyclical	26° 07' 36.9" S	27° 54' 29.9" E
414B	Cyclical	26° 07' 36.9" S	27° 54' 29.9" E
414C	Cyclical	26° 07' 36.9" S	27° 54' 29.9" E
414D	Cyclical	26° 02' 05.3" S	27° 45' 35.3" E
415A	Cyclical	26° 02' 05.3" S	27° 45' 35.3" E
415B	Cyclical	26° 02' 05.3" S	27° 45' 35.3" E
415D	Cyclical	26° 02' 05.3" S	27° 45' 35.3" E
417A	Cyclical	26° 01' 29.6" S	27° 35' 23.3" E
417B	Cyclical	26° 01' 29.6" S	27° 35' 23.3" E
417C	Cyclical	26° 01' 29.6" S	27° 35' 23.3" E
417D	Cyclical	26° 01' 29.6" S	27° 35' 23.3" E
419A	Cyclical	26° 23' 07.9" S	27° 49' 00.7" E
419B	Cyclical	26° 23' 07.9" S	27° 49' 00.7" E
419C	Cyclical	26° 23' 07.9" S	27° 49' 00.7" E
419D	Cyclical	26° 23' 07.9" S	27° 49' 00.7" E
420A	Cyclical	26° 21' 40.2" S	27° 50' 01.1" E
420B	Cyclical	26° 21' 40.2" S	27° 50' 01.1" E
420C	Cyclical	26° 21' 40.2" S	27° 50' 01.1" E
421A	Cyclical	26° 21' 07.8" S	27° 49' 48.8" E
421B	Cyclical	26° 21' 07.8" S	27° 49' 48.8" E
421C	Cyclical	26° 21' 07.8" S	27° 49' 48.8" E
421D	Cyclical	26° 21' 07.8" S	27° 49' 48.8" E
422A	Cyclical	26° 23' 32.4" S	27° 47' 11.9" E
422B	Cyclical	26° 23' 32.4" S	27° 47' 11.9" E
422D	Cyclical	26° 23' 32.4" S	27° 47' 11.9" E
423A	Cyclical	26° 03' 28.8" S	27° 26' 37.8" E
423B	Cyclical	26° 03' 28.8" S	27° 26' 37.8" E
423C	Cyclical	26° 03' 28.8" S	27° 26' 37.8" E
423D	Cyclical	26° 03' 28.8" S	27° 26' 37.8" E
424A	Cyclical	26° 03' 48.6" S	27° 32' 10.2" E
424B	Cyclical	26° 03' 48.6" S	27° 32' 10.2" E
424D	Cyclical	26° 03' 48.6" S	27° 32' 10.2" E
427A	Cyclical	26° 21' 39.0" S	27° 37' 03.4" E
427B	Cyclical	26° 21' 39.0" S	27° 37' 03.4" E
427D	Cyclical	26° 21' 39.0" S	27° 37' 03.4" E
429B	Cyclical	26° 03' 52.87" S	27° 41' 36.99" E
429C	Cyclical	26° 03' 52.87" S	27° 41' 36.99" E
429D	Cyclical	26° 03' 52.87" S	27° 41' 36.99" E
431A	Cyclical	26° 02' 00.8" S	27° 43' 57.1" E
431C	Cyclical	26° 02' 00.8" S	27° 43' 57.1" E
431D	Cyclical	26° 02' 00.8" S	27° 43' 57.1" E
434A	Cyclical	26° 18' 10.9" S	27° 52' 21.6" E
434B	Cyclical	26° 18' 10.9" S	27° 52' 21.6" E
434C	Cyclical	26° 18' 10.9" S	27° 52' 21.6" E
434D	Cyclical	26° 18' 10.9" S	27° 52' 21.6" E
435B	Cyclical	26° 19' 48.4" S	27° 57' 26.7" E
435C	Cyclical	26° 19' 48.4" S	27° 57' 26.7" E
435D	Cyclical	26° 19' 48.4" S	27° 57' 26.7" E
437A	Cyclical	26° 24' 37.3" S	27° 52' 23.2" E
437B	Cyclical	26° 24' 37.3" S	27° 52' 23.2" E
437C	Cyclical	26° 24' 37.3" S	27° 52' 23.2" E
437D	Cyclical	26° 24' 37.3" S	27° 52' 23.2" E
438A	Cyclical	26° 00' 23.1" S	27° 55' 54.5" E
438B	Cyclical	26° 00' 23.1" S	27° 55' 54.5" E
438C	Cyclical	26° 00' 23.1" S	27° 55' 54.5" E
441A	Cyclical	26° 25' 13.6" S	27° 52' 35.6" E
441C	Cyclical	26° 25' 13.6" S	27° 52' 35.6" E
443A	Cyclical	26° 18' 43.6" S	27° 46' 03.5" E
443B	Cyclical	26° 18' 43.6" S	27° 46' 03.5" E
443D	Cyclical	26° 18' 43.6" S	27° 46' 03.5" E
446A	Cyclical	26° 16' 12.4" S	27° 46' 32.5" E
446C	Cyclical	26° 16' 12.4" S	27° 46' 32.5" E
446D	Cyclical	26° 16' 12.4" S	27° 46' 32.5" E
447A	Cyclical	26° 02' 03.7" S	27° 36' 44.0" E

447B	Cyclical	26° 02' 03.7" S	27° 36' 44.0" E
447D	Cyclical	26° 02' 03.7" S	27° 36' 44.0" E
449A	Cyclical	26° 19' 24.1" S	27° 51' 57.1" E
449B	Cyclical	26° 19' 24.1" S	27° 51' 57.1" E
449C	Cyclical	26° 19' 24.1" S	27° 51' 57.1" E
449D	Cyclical	26° 19' 24.1" S	27° 51' 57.1" E
451A	Cyclical	26° 30' 16.2" S	27° 51' 28.5" E
451B	Cyclical	26° 30' 16.2" S	27° 51' 28.5" E
451C	Cyclical	26° 30' 16.2" S	27° 51' 28.5" E
451D	Cyclical	26° 30' 16.2" S	27° 51' 28.5" E
452A	Cyclical	26° 01' 38.6" S	27° 52' 03.8" E
452B	Cyclical	26° 01' 38.6" S	27° 52' 03.8" E
452D	Cyclical	26° 01' 38.6" S	27° 52' 03.8" E
453A	Cyclical	25° 02' 10.3" S	27° 50' 56.5" E
453B	Cyclical	25° 02' 10.3" S	27° 50' 56.5" E
453C	Cyclical	25° 02' 10.3" S	27° 50' 56.5" E
454A	Cyclical	26° 04' 43.8" S	27° 51' 30.7" E
454B	Cyclical	26° 04' 43.8" S	27° 51' 30.7" E
454C	Cyclical	26° 04' 43.8" S	27° 51' 30.7" E
454D	Cyclical	26° 04' 43.8" S	27° 51' 30.7" E
455A	Cyclical	26° 19' 49.9" S	27° 56' 38.6" E
455B	Cyclical	26° 19' 49.9" S	27° 56' 38.6" E
455D	Cyclical	26° 19' 49.9" S	27° 56' 38.6" E
457A	Cyclical	26° 25' 57.0" S	27° 44' 21.1" E
457B	Cyclical	26° 25' 57.0" S	27° 44' 21.1" E
457D	Cyclical	26° 25' 57.0" S	27° 44' 21.1" E
458B	Cyclical	26° 19' 45.4" S	27° 56' 52.0" E
458C	Cyclical	26° 19' 45.4" S	27° 56' 52.0" E
458D	Cyclical	26° 19' 45.4" S	27° 56' 52.0" E
460B	Cyclical	26° 06' 39.8" S	27° 40' 22.1" E
460C	Cyclical	26° 06' 39.8" S	27° 40' 22.1" E
460D	Cyclical	26° 06' 39.8" S	27° 40' 22.1" E
461A	Cyclical	26° 15' 54.0" S	27° 41' 46.4" E
461B	Cyclical	26° 15' 54.0" S	27° 41' 46.4" E
461D	Cyclical	26° 15' 54.0" S	27° 41' 46.4" E
467A	Cyclical	26° 15' 28.6" S	27° 45' 12.5" E
467B	Cyclical	26° 15' 28.6" S	27° 45' 12.5" E
467C	Cyclical	26° 15' 28.6" S	27° 45' 12.5" E
467D	Cyclical	26° 15' 28.6" S	27° 45' 12.5" E
471A	Cyclical	26° 15' 22.2" S	27° 34' 26.8" E
471B	Cyclical	26° 15' 22.2" S	27° 34' 26.8" E
471C	Cyclical	26° 15' 22.2" S	27° 34' 26.8" E
471D	Cyclical	26° 15' 22.2" S	27° 34' 26.8" E
472A	Cyclical	26° 15' 21.4" S	27° 35' 15.4" E
472B	Cyclical	26° 15' 21.4" S	27° 35' 15.4" E
472C	Cyclical	26° 15' 21.4" S	27° 35' 15.4" E
472D	Cyclical	26° 15' 21.4" S	27° 35' 15.4" E
478A	Cyclical	26° 04' 09.7" S	27° 40' 49.8" E
478B	Cyclical	26° 04' 09.7" S	27° 40' 49.8" E
478C	Cyclical	26° 04' 09.7" S	27° 40' 49.8" E
478D	Cyclical	26° 04' 09.7" S	27° 40' 49.8" E
484A	Cyclical	26° 22' 03.2" S	27° 50' 48.0" E
484B	Cyclical	26° 22' 03.2" S	27° 50' 48.0" E
484C	Cyclical	26° 22' 03.2" S	27° 50' 48.0" E
484D	Cyclical	26° 22' 03.2" S	27° 50' 48.0" E
487B	Cyclical	26° 01' 04.0" S	27° 36' 15.9" E
487C	Cyclical	26° 01' 04.0" S	27° 36' 15.9" E
487D	Cyclical	26° 01' 04.0" S	27° 36' 15.9" E
489A	Cyclical	26° 21' 36.9" S	27° 56' 46.0" E
489C	Cyclical	26° 21' 36.9" S	27° 56' 46.0" E
489D	Cyclical	26° 21' 36.9" S	27° 56' 46.0" E
493A	Cyclical	26° 21' 38.0" S	27° 29' 16.0" E
493B	Cyclical	26° 21' 38.0" S	27° 29' 16.0" E
493D	Cyclical	26° 21' 38.0" S	27° 29' 16.0" E
494A	Cyclical	26° 24' 34.8" S	27° 51' 47.0" E
494B	Cyclical	26° 24' 34.8" S	27° 51' 47.0" E
494C	Cyclical	26° 24' 34.8" S	27° 51' 47.0" E
494D	Cyclical	26° 24' 34.8" S	27° 51' 47.0" E
505A	Cyclical	26° 18' 59.7" S	27° 31' 33.3" E
505C	Cyclical	26° 18' 59.7" S	27° 31' 33.3" E
505D	Cyclical	26° 18' 59.7" S	27° 31' 33.3" E
509A	Cyclical	26° 20' 39.8" S	27° 23' 25.4" E
509B	Cyclical	26° 20' 39.8" S	27° 23' 25.4" E
509C	Cyclical	26° 20' 39.8" S	27° 23' 25.4" E
509D	Cyclical	26° 20' 39.8" S	27° 23' 25.4" E
512A	Cyclical	26° 32' 52.8" S	27° 40' 56.4" E
512B	Cyclical	26° 32' 52.8" S	27° 40' 56.4" E
512D	Cyclical	26° 32' 52.8" S	27° 40' 56.4" E
513A	Cyclical	26° 33' 18.4" S	27° 42' 07.9" E
513B	Cyclical	26° 33' 18.4" S	27° 42' 07.9" E
513D	Cyclical	26° 33' 18.4" S	27° 42' 07.9" E
514A	Cyclical	26° 31' 32.6" S	27° 44' 15.8" E
514B	Cyclical	26° 31' 32.6" S	27° 44' 15.8" E
514C	Cyclical	26° 31' 32.6" S	27° 44' 15.8" E
514D	Cyclical	26° 31' 32.6" S	27° 44' 15.8" E
515A	Cyclical	26° 34' 38.5" S	27° 47' 29.5" E
515B	Cyclical	26° 34' 38.5" S	27° 47' 29.5" E
515D	Cyclical	26° 34' 38.5" S	27° 47' 29.5" E
516A	Cyclical	26° 37' 59.9" S	27° 37' 29.8" E
516B	Cyclical	26° 37' 59.9" S	27° 37' 29.8" E
516C	Cyclical	26° 37' 59.9" S	27° 37' 29.8" E
516D	Cyclical	26° 37' 59.9" S	27° 37' 29.8" E
517B	Cyclical	26° 38' 01.1" S	27° 35' 32.9" E
517C	Cyclical	26° 38' 01.1" S	27° 35' 32.9" E
517D	Cyclical	26° 38' 01.1" S	27° 35' 32.9" E
518A	Cyclical	26° 42' 58.1" S	27° 38' 10.3" E
518B	Cyclical	26° 42' 58.1" S	27° 38' 10.3" E
518D	Cyclical	26° 42' 58.1" S	27° 38' 10.3" E
519A	Cyclical	26° 37' 47.4" S	27° 41' 19.2" E
519B	Cyclical	26° 37' 47.4" S	27° 41' 19.2" E
519D	Cyclical	26° 37' 47.4" S	27° 41' 19.2" E
520B	Cyclical	26° 37' 16.8" S	27° 45' 30.7" E
520C	Cyclical	26° 37' 16.8" S	27° 45' 30.7" E
520D	Cyclical	26° 37' 16.8" S	27° 45' 30.7" E
521A	Cyclical	26° 35' 26.2" S	27° 49' 17.0" E
521B	Cyclical	26° 35' 26.2" S	27° 49' 17.0" E
521C	Cyclical	26° 35' 26.2" S	27° 49' 17.0" E
521D	Cyclical	26° 35' 26.2" S	27° 49' 17.0" E
522B	Cyclical	26° 44' 02.7" S	27° 43' 09.8" E
522C	Cyclical	26° 44' 02.7" S	27° 43' 09.8" E
522D	Cyclical	26° 44' 02.7" S	27° 43' 09.8" E
523A	Cyclical	26° 44' 40.5" S	27° 46' 03.3" E
523B	Cyclical	26° 44' 40.5" S	27° 46' 03.3" E
523C	Cyclical	26° 44' 40.5" S	27° 46' 03.3" E
523D	Cyclical	26° 44' 40.5" S	27° 46' 03.3" E
524A	Cyclical	26° 31' 08.5" S	27° 55' 38.7" E
524B	Cyclical	26° 31' 08.5" S	27° 55' 38.7" E
524C	Cyclical	26° 31' 08.5" S	27° 55' 38.7" E
526A	Cyclical	26° 37' 10.2" S	27° 48' 45.1" E
526B	Cyclical	26° 37' 10.2" S	27° 48' 45.1" E
526C	Cyclical	26° 37' 10.2" S	27° 48' 45.1" E
526D	Cyclical	26° 37' 10.2" S	27° 48' 45.1" E
527A	Cyclical	26° 32' 38.2" S	27° 49' 47.4" E
527C	Cyclical	26° 32' 38.2" S	27° 49' 47.4" E
527D	Cyclical	26° 32' 38.2" S	27° 49' 47.4" E

528A	Cyclical	26° 44' 17.5" S	27° 42' 27.8" E
528B	Cyclical	26° 44' 17.5" S	27° 42' 27.8" E
528C	Cyclical	26° 44' 17.5" S	27° 42' 27.8" E
528D	Cyclical	26° 44' 17.5" S	27° 42' 27.8" E
529A	Cyclical	26° 43' 38.4" S	27° 44' 26.1" E
529B	Cyclical	26° 43' 38.4" S	27° 44' 26.1" E
529C	Cyclical	26° 43' 38.4" S	27° 44' 26.1" E
529D	Cyclical	26° 43' 38.4" S	27° 44' 26.1" E
530A	Cyclical	26° 31' 32.2" S	27° 54' 05.7" E
530B	Cyclical	26° 31' 32.2" S	27° 54' 05.7" E
530C	Cyclical	26° 31' 32.2" S	27° 54' 05.7" E
530D	Cyclical	26° 31' 32.2" S	27° 54' 05.7" E
531A	Cyclical	26° 43' 00.1" S	27° 47' 03.8" E
531B	Cyclical	26° 43' 00.1" S	27° 47' 03.8" E
531C	Cyclical	26° 43' 00.1" S	27° 47' 03.8" E
531D	Cyclical	26° 43' 00.1" S	27° 47' 03.8" E
532A	Cyclical	26° 42' 04.2" S	27° 45' 07.1" E
532B	Cyclical	26° 42' 04.2" S	27° 45' 07.1" E
532C	Cyclical	26° 42' 04.2" S	27° 45' 07.1" E
532D	Cyclical	26° 42' 04.2" S	27° 45' 07.1" E
533A	Cyclical	26° 37' 21.1" S	27° 51' 08.4" E
533B	Cyclical	26° 37' 21.1" S	27° 51' 08.4" E
533C	Cyclical	26° 37' 21.1" S	27° 51' 08.4" E
533D	Cyclical	26° 37' 21.1" S	27° 51' 08.4" E
534A	Cyclical	26° 36' 00.7" S	27° 38' 57.6" E
534C	Cyclical	26° 36' 00.7" S	27° 38' 57.6" E
534D	Cyclical	26° 36' 00.7" S	27° 38' 57.6" E
535A	Cyclical	26° 44' 31.6" S	27° 41' 30.7" E
535B	Cyclical	26° 44' 31.6" S	27° 41' 30.7" E
535C	Cyclical	26° 44' 31.6" S	27° 41' 30.7" E
535D	Cyclical	26° 44' 31.6" S	27° 41' 30.7" E
536A	Cyclical	26° 44' 48.6" S	27° 40' 39.0" E
536B	Cyclical	26° 44' 48.6" S	27° 40' 39.0" E
536C	Cyclical	26° 44' 48.6" S	27° 40' 39.0" E
537A	Cyclical	26° 30' 44.4" S	27° 55' 35.8" E
537C	Cyclical	26° 30' 44.4" S	27° 55' 35.8" E
537D	Cyclical	26° 30' 44.4" S	27° 55' 35.8" E
538A	Cyclical	26° 37' 37.5" S	27° 46' 12.6" E
538B	Cyclical	26° 37' 37.5" S	27° 46' 12.6" E
538C	Cyclical	26° 37' 37.5" S	27° 46' 12.6" E
542A	Cyclical	26° 42' 33.4" S	27° 48' 55.5" E
542B	Cyclical	26° 42' 33.4" S	27° 48' 55.5" E
542C	Cyclical	26° 42' 33.4" S	27° 48' 55.5" E
542D	Cyclical	26° 42' 33.4" S	27° 48' 55.5" E
544A	Cyclical	26° 34' 14.8" S	27° 40' 47.2" E
544C	Cyclical	26° 34' 14.8" S	27° 40' 47.2" E
544D	Cyclical	26° 34' 14.8" S	27° 40' 47.2" E
545A	Cyclical	26° 34' 45.0" S	27° 40' 29.2" E
545B	Cyclical	26° 34' 45.0" S	27° 40' 29.2" E
545C	Cyclical	26° 34' 45.0" S	27° 40' 29.2" E
546A	Cyclical	26° 40' 58.4" S	27° 36' 36.0" E
546B	Cyclical	26° 40' 58.4" S	27° 36' 36.0" E
546C	Cyclical	26° 40' 58.4" S	27° 36' 36.0" E
547B	Cyclical	26° 42' 55.4" S	27° 38' 30.6" E
547C	Cyclical	26° 42' 55.4" S	27° 38' 30.6" E
547D	Cyclical	26° 42' 55.4" S	27° 38' 30.6" E
548A	Cyclical	26° 41' 49.8" S	27° 43' 08.7" E
548B	Cyclical	26° 41' 49.8" S	27° 43' 08.7" E
548D	Cyclical	26° 41' 49.8" S	27° 43' 08.7" E
549A	Cyclical	26° 41' 54.5" S	27° 43' 35.6" E
549B	Cyclical	26° 41' 54.5" S	27° 43' 35.6" E
549C	Cyclical	26° 41' 54.5" S	27° 43' 35.6" E
549D	Cyclical	26° 41' 54.5" S	27° 43' 35.6" E
550A	Cyclical	26° 41' 07.6" S	27° 46' 12.7" E
550B	Cyclical	26° 41' 07.6" S	27° 46' 12.7" E
550D	Cyclical	26° 41' 07.6" S	27° 46' 12.7" E
551A	Cyclical	26° 40' 23.7" S	27° 47' 26.8" E
551B	Cyclical	26° 40' 23.7" S	27° 47' 26.8" E
551C	Cyclical	26° 40' 23.7" S	27° 47' 26.8" E
551D	Cyclical	26° 40' 23.7" S	27° 47' 26.8" E
553A	Cyclical	26° 45' 41.6" S	27° 40' 39.9" E
553B	Cyclical	26° 45' 41.6" S	27° 40' 39.9" E
553C	Cyclical	26° 45' 41.6" S	27° 40' 39.9" E
553D	Cyclical	26° 45' 41.6" S	27° 40' 39.9" E
554B	Cyclical	26° 43' 21.2" S	27° 45' 33.4" E
554C	Cyclical	26° 43' 21.2" S	27° 45' 33.4" E
554D	Cyclical	26° 43' 21.2" S	27° 45' 33.4" E
555A	Cyclical	26° 45' 06.1" S	27° 45' 17.3" E
555B	Cyclical	26° 45' 06.1" S	27° 45' 17.3" E
555D	Cyclical	26° 45' 06.1" S	27° 45' 17.3" E
556A	Cyclical	26° 44' 58.8" S	27° 43' 51.5" E
556B	Cyclical	26° 44' 58.8" S	27° 43' 51.5" E
556C	Cyclical	26° 44' 58.8" S	27° 43' 51.5" E
556D	Cyclical	26° 44' 58.8" S	27° 43' 51.5" E
557B	Cyclical	26° 45' 14.3" S	27° 44' 28.4" E
557C	Cyclical	26° 45' 14.3" S	27° 44' 28.4" E
557D	Cyclical	26° 45' 14.3" S	27° 44' 28.4" E
559A	Cyclical	26° 41' 37.3" S	27° 54' 10.2" E
559B	Cyclical	26° 41' 37.3" S	27° 54' 10.2" E
559C	Cyclical	26° 41' 37.3" S	27° 54' 10.2" E
559D	Cyclical	26° 41' 37.3" S	27° 54' 10.2" E
567A	Cyclical	26° 42' 06.1" S	27° 52' 48.2" E
567B	Cyclical	26° 42' 06.1" S	27° 52' 48.2" E
567C	Cyclical	26° 42' 06.1" S	27° 52' 48.2" E
567D	Cyclical	26° 42' 06.1" S	27° 52' 48.2" E
568A	Cyclical	26° 22' 30.5" S	28° 14' 47.5" E
568B	Cyclical	26° 22' 30.5" S	28° 14' 47.5" E
568C	Cyclical	26° 22' 30.5" S	28° 14' 47.5" E
568D	Cyclical	26° 22' 30.5" S	28° 14' 47.5" E
569A	Cyclical	26° 25' 53.0" S	28° 11' 39.6" E
569B	Cyclical	26° 25' 53.0" S	28° 11' 39.6" E
569D	Cyclical	26° 25' 53.0" S	28° 11' 39.6" E
570A	Cyclical	26° 30' 23.4" S	28° 07' 49.0" E
570B	Cyclical	26° 30' 23.4" S	28° 07' 49.0" E
570C	Cyclical	26° 30' 23.4" S	28° 07' 49.0" E
571A	Cyclical	26° 21' 29.7" S	28° 06' 56.1" E
571B	Cyclical	26° 21' 29.7" S	28° 06' 56.1" E
571C	Cyclical	26° 21' 29.7" S	28° 06' 56.1" E
571D	Cyclical	26° 21' 29.7" S	28° 06' 56.1" E
573A	Cyclical	26° 29' 56.3" S	28° 06' 24.0" E
573B	Cyclical	26° 29' 56.3" S	28° 06' 24.0" E
573D	Cyclical	26° 29' 56.3" S	28° 06' 24.0" E
574A	Cyclical	26° 29' 23.7" S	28° 03' 42.4" E
574C	Cyclical	26° 29' 23.7" S	28° 03' 42.4" E
574D	Cyclical	26° 29' 23.7" S	28° 03' 42.4" E
575A	Cyclical	26° 03' 19.4" S	28° 10' 59.1" E
575C	Cyclical	26° 03' 19.4" S	28° 10' 59.1" E
575D	Cyclical	26° 03' 19.4" S	28° 10' 59.1" E
577A	Cyclical	26° 05' 50.2" S	28° 18' 41.9" E
577B	Cyclical	26° 05' 50.2" S	28° 18' 41.9" E
577C	Cyclical	26° 05' 50.2" S	28° 18' 41.9" E
577D	Cyclical	26° 05' 50.2" S	28° 18' 41.9" E
578A	Cyclical	26° 01' 16.2" S	28° 00' 32.4" E
578B	Cyclical	26° 01' 16.2" S	28° 00' 32.4" E
578C	Cyclical	26° 01' 16.2" S	28° 00' 32.4" E

621A	Cyclical	26° 23' 48.2" S	28° 46' 25.0" E
621B	Cyclical	26° 23' 48.2" S	28° 46' 25.0" E
621C	Cyclical	26° 23' 48.2" S	28° 46' 25.0" E
622A	Cyclical	26° 26' 05.8" S	28° 47' 04.9" E
622B	Cyclical	26° 26' 05.8" S	28° 47' 04.9" E
622C	Cyclical	26° 26' 05.8" S	28° 47' 04.9" E
623A	Cyclical	26° 09' 48.0" S	28° 29' 41.7" E
623B	Cyclical	26° 09' 48.0" S	28° 29' 41.7" E
623C	Cyclical	26° 09' 48.0" S	28° 29' 41.7" E
623D	Cyclical	26° 09' 48.0" S	28° 29' 41.7" E
624A	Cyclical	26° 07' 35.0" S	28° 29' 25.1" E
624B	Cyclical	26° 07' 35.0" S	28° 29' 25.1" E
624C	Cyclical	26° 07' 35.0" S	28° 29' 25.1" E
624D	Cyclical	26° 07' 35.0" S	28° 29' 25.1" E
625A	Cyclical	26° 29' 49.7" S	28° 41' 41.8" E
625B	Cyclical	26° 29' 49.7" S	28° 41' 41.8" E
625C	Cyclical	26° 29' 49.7" S	28° 41' 41.8" E
625D	Cyclical	26° 29' 49.7" S	28° 41' 41.8" E
626B	Cyclical	26° 28' 05.7" S	28° 37' 22.4" E
626C	Cyclical	26° 28' 05.7" S	28° 37' 22.4" E
626D	Cyclical	26° 28' 05.7" S	28° 37' 22.4" E
627B	Cyclical	26° 27' 41.8" S	28° 36' 31.3" E
627C	Cyclical	26° 27' 41.8" S	28° 36' 31.3" E
627D	Cyclical	26° 27' 41.8" S	28° 36' 31.3" E
628A	Cyclical	26° 25' 54.7" S	28° 32' 24.9" E
628B	Cyclical	26° 25' 54.7" S	28° 32' 24.9" E
628C	Cyclical	26° 25' 54.7" S	28° 32' 24.9" E
628D	Cyclical	26° 25' 54.7" S	28° 32' 24.9" E
629A	Cyclical	26° 27' 25.0" S	28° 36' 00.9" E
629B	Cyclical	26° 27' 25.0" S	28° 36' 00.9" E
629D	Cyclical	26° 27' 25.0" S	28° 36' 00.9" E
631A	Cyclical	26° 32' 42.7" S	27° 32' 47.4" E
631B	Cyclical	26° 32' 42.7" S	27° 32' 47.4" E
631C	Cyclical	26° 32' 42.7" S	27° 32' 47.4" E
632A	Cyclical	26° 25' 46.8" S	28° 31' 39.5" E
632B	Cyclical	26° 25' 46.8" S	28° 31' 39.5" E
632D	Cyclical	26° 25' 46.8" S	28° 31' 39.5" E
633A	Cyclical	26° 27' 48.0" S	28° 05' 45.5" E
633B	Cyclical	26° 27' 48.0" S	28° 05' 45.5" E
633C	Cyclical	26° 27' 48.0" S	28° 05' 45.5" E
633D	Cyclical	26° 27' 48.0" S	28° 05' 45.5" E
635A	Cyclical	26° 27' 05.1" S	28° 44' 43.7" E
635B	Cyclical	26° 27' 05.1" S	28° 44' 43.7" E
635C	Cyclical	26° 27' 05.1" S	28° 44' 43.7" E
637A	Cyclical	26° 28' 57.7" S	28° 42' 40.8" E
637C	Cyclical	26° 28' 57.7" S	28° 42' 40.8" E
637D	Cyclical	26° 28' 57.7" S	28° 42' 40.8" E
638A	Cyclical	26° 23' 26.8" S	28° 40' 12.9" E
638B	Cyclical	26° 23' 26.8" S	28° 40' 12.9" E
638D	Cyclical	26° 23' 26.8" S	28° 40' 12.9" E
639A	Cyclical	26° 21' 44.3" S	28° 47' 01.8" E
639B	Cyclical	26° 21' 44.3" S	28° 47' 01.8" E
639C	Cyclical	26° 21' 44.3" S	28° 47' 01.8" E
639D	Cyclical	26° 21' 44.3" S	28° 47' 01.8" E
640A	Cyclical	26° 21' 24.5" S	28° 47' 07.0" E
640B	Cyclical	26° 21' 24.5" S	28° 47' 07.0" E
640D	Cyclical	26° 21' 24.5" S	28° 47' 07.0" E
641A	Cyclical	26° 23' 31.3" S	28° 39' 57.4" E
641B	Cyclical	26° 23' 31.3" S	28° 39' 57.4" E
641C	Cyclical	26° 23' 31.3" S	28° 39' 57.4" E
641D	Cyclical	26° 23' 31.3" S	28° 39' 57.4" E
642A	Cyclical	26° 15' 12.5" S	28° 19' 16.0" E
642B	Cyclical	26° 15' 12.5" S	28° 19' 16.0" E
642C	Cyclical	26° 15' 12.5" S	28° 19' 16.0" E
642D	Cyclical	26° 15' 12.5" S	28° 19' 16.0" E
643A	Cyclical	26° 27' 07.6" S	28° 04' 18.4" E
643B	Cyclical	26° 27' 07.6" S	28° 04' 18.4" E
643C	Cyclical	26° 27' 07.6" S	28° 04' 18.4" E
643D	Cyclical	26° 27' 07.6" S	28° 04' 18.4" E
649A	Cyclical	26° 25' 01.6" S	28° 04' 21.7" E
649B	Cyclical	26° 25' 01.6" S	28° 04' 21.7" E
649D	Cyclical	26° 25' 01.6" S	28° 04' 21.7" E
651A	Cyclical	26° 00' 33.1" S	28° 19' 38.3" E
651B	Cyclical	26° 00' 33.1" S	28° 19' 38.3" E
651C	Cyclical	26° 00' 33.1" S	28° 19' 38.3" E
651D	Cyclical	26° 00' 33.1" S	28° 19' 38.3" E
653A	Cyclical	26° 29' 29.3" S	28° 22' 21.0" E
653B	Cyclical	26° 29' 29.3" S	28° 22' 21.0" E
653C	Cyclical	26° 29' 29.3" S	28° 22' 21.0" E
653D	Cyclical	26° 29' 29.3" S	28° 22' 21.0" E
659A	Cyclical	26° 20' 53.4" S	28° 46' 45.5" E
659B	Cyclical	26° 20' 53.4" S	28° 46' 45.5" E
659D	Cyclical	26° 20' 53.4" S	28° 46' 45.5" E
661B	Cyclical	26° 26' 14.1" S	28° 13' 10.6" E
661C	Cyclical	26° 26' 14.1" S	28° 13' 10.6" E
661D	Cyclical	26° 26' 14.1" S	28° 13' 10.6" E
662A	Cyclical	26° 27' 03.4" S	28° 02' 06.9" E
662B	Cyclical	26° 27' 03.4" S	28° 02' 06.9" E
662C	Cyclical	26° 27' 03.4" S	28° 02' 06.9" E
662D	Cyclical	26° 27' 03.4" S	28° 02' 06.9" E
663B	Cyclical	26° 25' 01.6" S	28° 00' 34.8" E
663C	Cyclical	26° 25' 01.6" S	28° 00' 34.8" E
663D	Cyclical	26° 25' 01.6" S	28° 00' 34.8" E
665A	Cyclical	26° 29' 23.0" S	28° 03' 09.3" E
665B	Cyclical	26° 29' 23.0" S	28° 03' 09.3" E
665C	Cyclical	26° 29' 23.0" S	28° 03' 09.3" E
665D	Cyclical	26° 29' 23.0" S	28° 03' 09.3" E
667A	Cyclical	26° 29' 06.0" S	28° 33' 08.4" E
667B	Cyclical	26° 29' 06.0" S	28° 33' 08.4" E
667C	Cyclical	26° 29' 06.0" S	28° 33' 08.4" E
668A	Cyclical	26° 24' 29.2" S	28° 09' 51.5" E
668C	Cyclical	26° 24' 29.2" S	28° 09' 51.5" E
668D	Cyclical	26° 24' 29.2" S	28° 09' 51.5" E
671B	Cyclical	26° 23' 04.1" S	28° 18' 57.2" E
671C	Cyclical	26° 23' 04.1" S	28° 18' 57.2" E
671D	Cyclical	26° 23' 04.1" S	28° 18' 57.2" E
672A	Cyclical	26° 04' 47.7" S	28° 17' 08.7" E
672B	Cyclical	26° 04' 47.7" S	28° 17' 08.7" E
672C	Cyclical	26° 04' 47.7" S	28° 17' 08.7" E
672D	Cyclical	26° 04' 47.7" S	28° 17' 08.7" E
673A	Cyclical	26° 02' 34.8" S	28° 15' 24.2" E
673B	Cyclical	26° 02' 34.8" S	28° 15' 24.2" E
673C	Cyclical	26° 02' 34.8" S	28° 15' 24.2" E
674A	Cyclical	26° 17' 49.6" S	28° 36' 09.4" E
674B	Cyclical	26° 17' 49.6" S	28° 36' 09.4" E
674C	Cyclical	26° 17' 49.6" S	28° 36' 09.4" E
674D	Cyclical	26° 17' 49.6" S	28° 36' 09.4" E
675A	Cyclical	26° 17' 54.1" S	28° 36' 25.0" E
675B	Cyclical	26° 17' 54.1" S	28° 36' 25.0" E
675C	Cyclical	26° 17' 54.1" S	28° 36' 25.0" E
676A	Cyclical	26° 23' 29.6" S	28° 42' 35.4" E
676B	Cyclical	26° 23' 29.6" S	28° 42' 35.4" E
676C	Cyclical	26° 23' 29.6" S	28° 42' 35.4" E
676D	Cyclical	26° 23' 29.6" S	28° 42' 35.4" E
679B	Cyclical	26° 29' 54.0" S	28° 04' 50.4" E

679C	Cyclical	26° 29' 54.0" S	28° 04' 50.4" E
679D	Cyclical	26° 29' 54.0" S	28° 04' 50.4" E
680B	Cyclical	26° 23' 37.8" S	28° 22' 18.3" E
680C	Cyclical	26° 23' 37.8" S	28° 22' 18.3" E
680D	Cyclical	26° 23' 37.8" S	28° 22' 18.3" E
682A	Cyclical	26° 26' 19.7" S	28° 18' 46.8" E
682B	Cyclical	26° 26' 19.7" S	28° 18' 46.8" E
682C	Cyclical	26° 26' 19.7" S	28° 18' 46.8" E
683A	Cyclical	26° 01' 16.8" S	28° 00' 11.2" E
683B	Cyclical	26° 01' 16.8" S	28° 00' 11.2" E
683D	Cyclical	26° 01' 16.8" S	28° 00' 11.2" E
685A	Cyclical	26° 20' 45.6" S	28° 02' 31.3" E
685C	Cyclical	26° 20' 45.6" S	28° 02' 31.3" E
685D	Cyclical	26° 20' 45.6" S	28° 02' 31.3" E
686A	Cyclical	25° 58' 51.1" S	28° 48' 18.4" E
686C	Cyclical	25° 58' 51.1" S	28° 48' 18.4" E
686D	Cyclical	25° 58' 51.1" S	28° 48' 18.4" E
687B	Cyclical	26° 20' 04.7" S	27° 59' 33.7" E
687C	Cyclical	26° 20' 04.7" S	27° 59' 33.7" E
687D	Cyclical	26° 20' 04.7" S	27° 59' 33.7" E
689A	Cyclical	26° 22' 46.1" S	28° 08' 21.7" E
689B	Cyclical	26° 22' 46.1" S	28° 08' 21.7" E
689C	Cyclical	26° 22' 46.1" S	28° 08' 21.7" E
689D	Cyclical	26° 22' 46.1" S	28° 08' 21.7" E
697A	Cyclical	26° 27' 32.7" S	28° 25' 24.7" E
697C	Cyclical	26° 27' 32.7" S	28° 25' 24.7" E
697D	Cyclical	26° 27' 32.7" S	28° 25' 24.7" E
699A	Cyclical	26° 19' 10.6" S	28° 35' 26.8" E
699B	Cyclical	26° 19' 10.6" S	28° 35' 26.8" E
699C	Cyclical	26° 19' 10.6" S	28° 35' 26.8" E
699D	Cyclical	26° 19' 10.6" S	28° 35' 26.8" E
700A	Cyclical	26° 21' 35.2" S	28° 40' 05.6" E
700B	Cyclical	26° 21' 35.2" S	28° 40' 05.6" E
700C	Cyclical	26° 21' 35.2" S	28° 40' 05.6" E
700D	Cyclical	26° 21' 35.2" S	28° 40' 05.6" E
701A	Cyclical	26° 22' 12.0" S	28° 45' 25.9" E
701B	Cyclical	26° 22' 12.0" S	28° 45' 25.9" E
701C	Cyclical	26° 22' 12.0" S	28° 45' 25.9" E
701D	Cyclical	26° 22' 12.0" S	28° 45' 25.9" E
702A	Cyclical	26° 22' 22.4" S	28° 46' 50.6" E
702B	Cyclical	26° 22' 22.4" S	28° 46' 50.6" E
702C	Cyclical	26° 22' 22.4" S	28° 46' 50.6" E
702D	Cyclical	26° 22' 22.4" S	28° 46' 50.6" E
704A	Cyclical	26° 30' 16.9" S	28° 26' 11.2" E
704B	Cyclical	26° 30' 16.9" S	28° 26' 11.2" E
704D	Cyclical	26° 30' 16.9" S	28° 26' 11.2" E
709B	Cyclical	26° 23' 08.2" S	28° 18' 18.1" E
709C	Cyclical	26° 23' 08.2" S	28° 18' 18.1" E
709D	Cyclical	26° 23' 08.2" S	28° 18' 18.1" E
718A	Cyclical	26° 28' 46.9" S	28° 23' 47.7" E
718B	Cyclical	26° 28' 46.9" S	28° 23' 47.7" E
718C	Cyclical	26° 28' 46.9" S	28° 23' 47.7" E
718D	Cyclical	26° 28' 46.9" S	28° 23' 47.7" E
724A	Cyclical	26° 41' 33.2" S	28° 23' 40.8" E
724B	Cyclical	26° 41' 33.2" S	28° 23' 40.8" E
724C	Cyclical	26° 41' 33.2" S	28° 23' 40.8" E
725A	Cyclical	26° 35' 28.1" S	28° 01' 31.7" E
725B	Cyclical	26° 35' 28.1" S	28° 01' 31.7" E
725C	Cyclical	26° 35' 28.1" S	28° 01' 31.7" E
725D	Cyclical	26° 35' 28.1" S	28° 01' 31.7" E
726A	Cyclical	26° 37' 48.3" S	28° 04' 38.7" E
726B	Cyclical	26° 37' 48.3" S	28° 04' 38.7" E
726C	Cyclical	26° 37' 48.3" S	28° 04' 38.7" E
726D	Cyclical	26° 37' 48.3" S	28° 04' 38.7" E
727A	Cyclical	26° 31' 41.4" S	28° 08' 59.8" E
727B	Cyclical	26° 31' 41.4" S	28° 08' 59.8" E
727C	Cyclical	26° 31' 41.4" S	28° 08' 59.8" E
728A	Cyclical	26° 33' 32.9" S	28° 09' 45.5" E
728B	Cyclical	26° 33' 32.9" S	28° 09' 45.5" E
728C	Cyclical	26° 33' 32.9" S	28° 09' 45.5" E
728D	Cyclical	26° 33' 32.9" S	28° 09' 45.5" E
729B	Cyclical	26° 32' 58.2" S	28° 16' 17.8" E
729C	Cyclical	26° 32' 58.2" S	28° 16' 17.8" E
729D	Cyclical	26° 32' 58.2" S	28° 16' 17.8" E
730B	Cyclical	26° 33' 23.4" S	28° 12' 19.5" E
730C	Cyclical	26° 33' 23.4" S	28° 12' 19.5" E
730D	Cyclical	26° 33' 23.4" S	28° 12' 19.5" E
731A	Cyclical	26° 31' 50.7" S	28° 18' 40.1" E
731B	Cyclical	26° 31' 50.7" S	28° 18' 40.1" E
731D	Cyclical	26° 31' 50.7" S	28° 18' 40.1" E
732B	Cyclical	26° 33' 28.8" S	28° 04' 02.7" E
732C	Cyclical	26° 33' 28.8" S	28° 04' 02.7" E
732D	Cyclical	26° 33' 28.8" S	28° 04' 02.7" E
733A	Cyclical	26° 33' 00.7" S	28° 20' 30.3" E
733B	Cyclical	26° 33' 00.7" S	28° 20' 30.3" E
733C	Cyclical	26° 33' 00.7" S	28° 20' 30.3" E
734A	Cyclical	26° 40' 33.4" S	28° 02' 53.0" E
734B	Cyclical	26° 40' 33.4" S	28° 02' 53.0" E
734C	Cyclical	26° 40' 33.4" S	28° 02' 53.0" E
735A	Cyclical	26° 30' 20.0" S	28° 20' 54.1" E
735B	Cyclical	26° 30' 20.0" S	28° 20' 54.1" E
735C	Cyclical	26° 30' 20.0" S	28° 20' 54.1" E
735D	Cyclical	26° 30' 20.0" S	28° 20' 54.1" E
736A	Cyclical	26° 36' 43.3" S	28° 07' 59.1" E
736B	Cyclical	26° 36' 43.3" S	28° 07' 59.1" E
736D	Cyclical	26° 36' 43.3" S	28° 07' 59.1" E
738A	Cyclical	26° 35' 19.7" S	28° 10' 33.7" E
738B	Cyclical	26° 35' 19.7" S	28° 10' 33.7" E
738C	Cyclical	26° 35' 19.7" S	28° 10' 33.7" E
738D	Cyclical	26° 35' 19.7" S	28° 10' 33.7" E
739A	Cyclical	26° 37' 40.9" S	28° 12' 46.3" E
739C	Cyclical	26° 37' 40.9" S	28° 12' 46.3" E
739D	Cyclical	26° 37' 40.9" S	28° 12' 46.3" E
740A	Cyclical	26° 37' 09.9" S	28° 03' 26.9" E
740B	Cyclical	26° 37' 09.9" S	28° 03' 26.9" E
740C	Cyclical	26° 37' 09.9" S	28° 03' 26.9" E
740D	Cyclical	26° 37' 09.9" S	28° 03' 26.9" E
741A	Cyclical	26° 38' 59.9" S	28° 00' 56.2" E
741B	Cyclical	26° 38' 59.9" S	28° 00' 56.2" E
741C	Cyclical	26° 38' 59.9" S	28° 00' 56.2" E
741D	Cyclical	26° 38' 59.9" S	28° 00' 56.2" E
742B	Cyclical	26° 38' 40.1" S	28° 06' 44.8" E
742C	Cyclical	26° 38' 40.1" S	28° 06' 44.8" E
742D	Cyclical	26° 38' 40.1" S	28° 06' 44.8" E
743A	Cyclical	26° 39' 32.9" S	28° 06' 37.8" E
743B	Cyclical	26° 39' 32.9" S	28° 06' 37.8" E
743C	Cyclical	26° 39' 32.9" S	28° 06' 37.8" E
744A	Cyclical	26° 42' 12.6" S	28° 03' 48.4" E
744B	Cyclical	26° 42' 12.6" S	28° 03' 48.4" E
744C	Cyclical	26° 42' 12.6" S	28° 03' 48.4" E
745B	Cyclical	26° 39' 30.6" S	28° 00' 46.1" E
745C	Cyclical	26° 39' 30.6" S	28° 00' 46.1" E
745D	Cyclical	26° 39' 30.6" S	28° 00' 46.1" E
746A	Cyclical	26° 49' 42.7" S	28° 12' 29.1" E
746B	Cyclical	26° 49' 42.7" S	28° 12' 29.1" E

746C	Cyclical	26° 49' 42.7" S	28° 12' 29.1" E
746D	Cyclical	26° 49' 42.7" S	28° 12' 29.1" E
747A	Cyclical	26° 44' 50.5" S	28° 05' 53.6" E
747B	Cyclical	26° 44' 50.5" S	28° 05' 53.6" E
747C	Cyclical	26° 44' 50.5" S	28° 05' 53.6" E
747D	Cyclical	26° 44' 50.5" S	28° 05' 53.6" E
748A	Cyclical	26° 47' 15.7" S	28° 08' 23.5" E
748B	Cyclical	26° 47' 15.7" S	28° 08' 23.5" E
748C	Cyclical	26° 47' 15.7" S	28° 08' 23.5" E
748D	Cyclical	26° 47' 15.7" S	28° 08' 23.5" E
749A	Cyclical	26° 51' 02.9" S	28° 15' 55.6" E
749B	Cyclical	26° 51' 02.9" S	28° 15' 55.6" E
749D	Cyclical	26° 51' 02.9" S	28° 15' 55.6" E
750A	Cyclical	26° 48' 26.0" S	28° 03' 32.3" E
750C	Cyclical	26° 48' 26.0" S	28° 03' 32.3" E
750D	Cyclical	26° 48' 26.0" S	28° 03' 32.3" E
751A	Cyclical	26° 42' 11.5" S	28° 06' 23.1" E
751B	Cyclical	26° 42' 11.5" S	28° 06' 23.1" E
751C	Cyclical	26° 42' 11.5" S	28° 06' 23.1" E
751D	Cyclical	26° 42' 11.5" S	28° 06' 23.1" E
752A	Cyclical	26° 39' 55.9" S	28° 15' 01.7" E
752B	Cyclical	26° 39' 55.9" S	28° 15' 01.7" E
752C	Cyclical	26° 39' 55.9" S	28° 15' 01.7" E
752D	Cyclical	26° 39' 55.9" S	28° 15' 01.7" E
753A	Cyclical	26° 42' 47.0" S	28° 18' 03.4" E
753C	Cyclical	26° 42' 47.0" S	28° 18' 03.4" E
753D	Cyclical	26° 42' 47.0" S	28° 18' 03.4" E
754A	Cyclical	26° 44' 41.0" S	28° 14' 32.8" E
754B	Cyclical	26° 44' 41.0" S	28° 14' 32.8" E
754D	Cyclical	26° 44' 41.0" S	28° 14' 32.8" E
755B	Cyclical	26° 44' 39.7" S	28° 17' 01.6" E
755C	Cyclical	26° 44' 39.7" S	28° 17' 01.6" E
755D	Cyclical	26° 44' 39.7" S	28° 17' 01.6" E
757A	Cyclical	26° 43' 53.0" S	28° 10' 27.2" E
757B	Cyclical	26° 43' 53.0" S	28° 10' 27.2" E
757C	Cyclical	26° 43' 53.0" S	28° 10' 27.2" E
757D	Cyclical	26° 43' 53.0" S	28° 10' 27.2" E
758B	Cyclical	26° 44' 39.3" S	28° 18' 06.5" E
758C	Cyclical	26° 44' 39.3" S	28° 18' 06.5" E
758D	Cyclical	26° 44' 39.3" S	28° 18' 06.5" E
759A	Cyclical	26° 44' 32.6" S	28° 23' 22.9" E
759B	Cyclical	26° 44' 32.6" S	28° 23' 22.9" E
759C	Cyclical	26° 44' 32.6" S	28° 23' 22.9" E
759D	Cyclical	26° 44' 32.6" S	28° 23' 22.9" E
762A	Cyclical	26° 36' 32.1" S	28° 19' 15.9" E
762B	Cyclical	26° 36' 32.1" S	28° 19' 15.9" E
762C	Cyclical	26° 36' 32.1" S	28° 19' 15.9" E
764A	Cyclical	26° 37' 28.7" S	28° 19' 34.2" E
764B	Cyclical	26° 37' 28.7" S	28° 19' 34.2" E
764C	Cyclical	26° 37' 28.7" S	28° 19' 34.2" E
766A	Cyclical	26° 49' 31.2" S	28° 15' 44.9" E
766B	Cyclical	26° 49' 31.2" S	28° 15' 44.9" E
766C	Cyclical	26° 49' 31.2" S	28° 15' 44.9" E
766D	Cyclical	26° 49' 31.2" S	28° 15' 44.9" E
767A	Cyclical	26° 46' 43.9" S	28° 19' 06.9" E
767B	Cyclical	26° 46' 43.9" S	28° 19' 06.9" E
767C	Cyclical	26° 46' 43.9" S	28° 19' 06.9" E
768A	Cyclical	26° 34' 21.1" S	28° 29' 09.1" E
768B	Cyclical	26° 34' 21.1" S	28° 29' 09.1" E
768C	Cyclical	26° 34' 21.1" S	28° 29' 09.1" E
770A	Cyclical	26° 34' 14.8" S	28° 25' 11.8" E
770B	Cyclical	26° 34' 14.8" S	28° 25' 11.8" E
770D	Cyclical	26° 34' 14.8" S	28° 25' 11.8" E
771A	Cyclical	26° 31' 05.7" S	28° 21' 28.0" E
771C	Cyclical	26° 31' 05.7" S	28° 21' 28.0" E
771D	Cyclical	26° 31' 05.7" S	28° 21' 28.0" E
772B	Cyclical	26° 33' 14.5" S	28° 22' 49.5" E
772C	Cyclical	26° 33' 14.5" S	28° 22' 49.5" E
772D	Cyclical	26° 33' 14.5" S	28° 22' 49.5" E
773A	Cyclical	26° 30' 46.5" S	28° 29' 53.5" E
773B	Cyclical	26° 30' 46.5" S	28° 29' 53.5" E
773D	Cyclical	26° 30' 46.5" S	28° 29' 53.5" E
774A	Cyclical	26° 35' 23.1" S	28° 29' 24.4" E
774C	Cyclical	26° 35' 23.1" S	28° 29' 24.4" E
774D	Cyclical	26° 35' 23.1" S	28° 29' 24.4" E
775B	Cyclical	26° 30' 46.1" S	28° 29' 34.8" E
775C	Cyclical	26° 30' 46.1" S	28° 29' 34.8" E
775D	Cyclical	26° 30' 46.1" S	28° 29' 34.8" E
776A	Cyclical	26° 36' 16.7" S	28° 22' 53.9" E
776B	Cyclical	26° 36' 16.7" S	28° 22' 53.9" E
776C	Cyclical	26° 36' 16.7" S	28° 22' 53.9" E
777B	Cyclical	26° 41' 37.4" S	28° 16' 16.3" E
777C	Cyclical	26° 41' 37.4" S	28° 16' 16.3" E
777D	Cyclical	26° 41' 37.4" S	28° 16' 16.3" E
778B	Cyclical	26° 34' 56.7" S	28° 25' 57.5" E
778C	Cyclical	26° 34' 56.7" S	28° 25' 57.5" E
778D	Cyclical	26° 34' 56.7" S	28° 25' 57.5" E
779A	Cyclical	26° 38' 10.4" S	28° 03' 29.9" E
779B	Cyclical	26° 38' 10.4" S	28° 03' 29.9" E
779C	Cyclical	26° 38' 10.4" S	28° 03' 29.9" E
779D	Cyclical	26° 38' 10.4" S	28° 03' 29.9" E
780A	Cyclical	26° 36' 22.1" S	28° 29' 28.3" E
780B	Cyclical	26° 36' 22.1" S	28° 29' 28.3" E
780D	Cyclical	26° 36' 22.1" S	28° 29' 28.3" E
781A	Cyclical	26° 31' 18.7" S	28° 19' 24.8" E
781B	Cyclical	26° 31' 18.7" S	28° 19' 24.8" E
781D	Cyclical	26° 31' 18.7" S	28° 19' 24.8" E
782A	Cyclical	26° 40' 09.4" S	28° 19' 03.7" E
782C	Cyclical	26° 40' 09.4" S	28° 19' 03.7" E
782D	Cyclical	26° 40' 09.4" S	28° 19' 03.7" E
783A	Cyclical	26° 38' 31.6" S	28° 17' 10.5" E
783B	Cyclical	26° 38' 31.6" S	28° 17' 10.5" E
783C	Cyclical	26° 38' 31.6" S	28° 17' 10.5" E
789A	Cyclical	26° 33' 27.3" S	28° 03' 59.5" E
789B	Cyclical	26° 33' 27.3" S	28° 03' 59.5" E
789D	Cyclical	26° 33' 27.3" S	28° 03' 59.5" E
790B	Cyclical	26° 33' 28.8" S	28° 04' 02.7" E
790C	Cyclical	26° 33' 28.8" S	28° 04' 02.7" E
790D	Cyclical	26° 33' 28.8" S	28° 04' 02.7" E
791A	Cyclical	26° 38' 10.9" S	28° 13' 09.9" E
791C	Cyclical	26° 38' 10.9" S	28° 13' 09.9" E
791D	Cyclical	26° 38' 10.9" S	28° 13' 09.9" E
797A	Cyclical	26° 33' 34.0" S	28° 20' 08.6" E
797C	Cyclical	26° 33' 34.0" S	28° 20' 08.6" E
797D	Cyclical	26° 33' 34.0" S	28° 20' 08.6" E
800A	Cyclical	26° 36' 27.1" S	28° 22' 57.9" E
800C	Cyclical	26° 36' 27.1" S	28° 22' 57.9" E
800D	Cyclical	26° 36' 27.1" S	28° 22' 57.9" E
1004A	Cyclical	26° 01' 55.3" S	27° 52' 32.2" E
1004B	Cyclical	26° 01' 55.3" S	27° 52' 32.2" E
1004C	Cyclical	26° 01' 55.3" S	27° 52' 32.2" E
1004D	Cyclical	26° 01' 55.3" S	27° 52' 32.2" E
1006A	Cyclical	25° 57' 07.2" S	27° 57' 50.8" E
1006B	Cyclical	25° 57' 07.2" S	27° 57' 50.8" E
1006C	Cyclical	25° 57' 07.2" S	27° 57' 50.8" E

1006D	Cyclical	25° 57' 07.2" S	27° 57' 50.8" E
1018B	Cyclical	26° 19' 29.2" S	27° 22' 11.4" E
1018C	Cyclical	26° 19' 29.2" S	27° 22' 11.4" E
1018D	Cyclical	26° 19' 29.2" S	27° 22' 11.4" E
1019A	Cyclical	25° 51' 27.6" S	28° 06' 30.9" E
1019B	Cyclical	25° 51' 27.6" S	28° 06' 30.9" E
1019C	Cyclical	25° 51' 27.6" S	28° 06' 30.9" E
1019D	Cyclical	25° 51' 27.6" S	28° 06' 30.9" E
1500A	Cyclical	25° 35' 11.2" S	27° 59' 15.7" E
1500B	Cyclical	25° 35' 11.2" S	27° 59' 15.7" E
1500C	Cyclical	25° 35' 11.2" S	27° 59' 15.7" E
1500D	Cyclical	25° 35' 11.2" S	27° 59' 15.7" E
1501A	Cyclical	25° 28' 22.0" S	28° 03' 40.1" E
1501B	Cyclical	25° 28' 22.0" S	28° 03' 40.1" E
1501C	Cyclical	25° 28' 22.0" S	28° 03' 40.1" E
1501D	Cyclical	25° 28' 22.0" S	28° 03' 40.1" E
1502A	Cyclical	25° 25' 44.4" S	28° 02' 14.1" E
1502B	Cyclical	25° 25' 44.4" S	28° 02' 14.1" E
1502C	Cyclical	25° 25' 44.4" S	28° 02' 14.1" E
1502D	Cyclical	25° 25' 44.4" S	28° 02' 14.1" E
1503A	Cyclical	25° 24' 44.9" S	28° 01' 48.2" E
1503C	Cyclical	25° 24' 44.9" S	28° 01' 48.2" E
1503D	Cyclical	25° 24' 44.9" S	28° 01' 48.2" E
1504A	Cyclical	25° 29' 41.6" S	28° 02' 43.6" E
1504B	Cyclical	25° 29' 41.6" S	28° 02' 43.6" E
1504C	Cyclical	25° 29' 41.6" S	28° 02' 43.6" E
1504D	Cyclical	25° 29' 41.6" S	28° 02' 43.6" E
1505A	Cyclical	25° 29' 35.7" S	28° 01' 31.2" E
1505B	Cyclical	25° 29' 35.7" S	28° 01' 31.2" E
1505D	Cyclical	25° 29' 35.7" S	28° 01' 31.2" E
1506A	Cyclical	25° 29' 51.4" S	28° 01' 04.3" E
1506B	Cyclical	25° 29' 51.4" S	28° 01' 04.3" E
1506C	Cyclical	25° 29' 51.4" S	28° 01' 04.3" E
1506D	Cyclical	25° 29' 51.4" S	28° 01' 04.3" E
1507A	Cyclical	25° 31' 40.9" S	28° 01' 39.0" E
1507B	Cyclical	25° 31' 40.9" S	28° 01' 39.0" E
1507D	Cyclical	25° 31' 40.9" S	28° 01' 39.0" E
1508A	Cyclical	25° 29' 20.4" S	28° 00' 26.9" E
1508B	Cyclical	25° 29' 20.4" S	28° 00' 26.9" E
1508C	Cyclical	25° 29' 20.4" S	28° 00' 26.9" E
1508D	Cyclical	25° 29' 20.4" S	28° 00' 26.9" E
1509A	Cyclical	25° 28' 56.2" S	28° 02' 57.5" E
1509B	Cyclical	25° 28' 56.2" S	28° 02' 57.5" E
1509C	Cyclical	25° 28' 56.2" S	28° 02' 57.5" E
1509D	Cyclical	25° 28' 56.2" S	28° 02' 57.5" E
1510A	Cyclical	25° 28' 49.3" S	28° 00' 48.1" E
1510B	Cyclical	25° 28' 49.3" S	28° 00' 48.1" E
1510C	Cyclical	25° 28' 49.3" S	28° 00' 48.1" E
1510D	Cyclical	25° 28' 49.3" S	28° 00' 48.1" E
1511B	Cyclical	25° 25' 29.0" S	28° 03' 03.4" E
1511C	Cyclical	25° 25' 29.0" S	28° 03' 03.4" E
1511D	Cyclical	25° 25' 29.0" S	28° 03' 03.4" E
1512A	Cyclical	25° 41' 07.8" S	28° 43' 01.0" E
1512B	Cyclical	25° 41' 07.8" S	28° 43' 01.0" E
1512C	Cyclical	25° 41' 07.8" S	28° 43' 01.0" E
1512D	Cyclical	25° 41' 07.8" S	28° 43' 01.0" E
1513A	Cyclical	25° 42' 34.4" S	28° 42' 24.6" E
1513B	Cyclical	25° 42' 34.4" S	28° 42' 24.6" E
1513C	Cyclical	25° 42' 34.4" S	28° 42' 24.6" E
1514A	Cyclical	25° 42' 47.5" S	28° 42' 18.7" E
1514B	Cyclical	25° 42' 47.5" S	28° 42' 18.7" E
1514C	Cyclical	25° 42' 47.5" S	28° 42' 18.7" E
1514D	Cyclical	25° 42' 47.5" S	28° 42' 18.7" E
1515A	Cyclical	25° 48' 17.5" S	28° 44' 41.2" E
1515B	Cyclical	25° 48' 17.5" S	28° 44' 41.2" E
1515C	Cyclical	25° 48' 17.5" S	28° 44' 41.2" E
1515D	Cyclical	25° 48' 17.5" S	28° 44' 41.2" E
1516A	Cyclical	25° 55' 19.5" S	28° 35' 14.4" E
1516B	Cyclical	25° 55' 19.5" S	28° 35' 14.4" E
1516C	Cyclical	25° 55' 19.5" S	28° 35' 14.4" E
1517A	Cyclical	26° 21' 30.5" S	27° 15' 59.3" E
1517C	Cyclical	26° 21' 30.5" S	27° 15' 59.3" E
1517D	Cyclical	26° 21' 30.5" S	27° 15' 59.3" E
1518A	Cyclical	25° 57' 38.7" S	28° 30' 35.6" E
1518B	Cyclical	25° 57' 38.7" S	28° 30' 35.6" E
1518D	Cyclical	25° 57' 38.7" S	28° 30' 35.6" E
1519B	Cyclical	25° 54' 56.2" S	28° 30' 43.7" E
1519C	Cyclical	25° 54' 56.2" S	28° 30' 43.7" E
1519D	Cyclical	25° 54' 56.2" S	28° 30' 43.7" E
1520A	Cyclical	26° 22' 36.0" S	27° 17' 11.6" E
1520C	Cyclical	26° 22' 36.0" S	27° 17' 11.6" E
1520D	Cyclical	26° 22' 36.0" S	27° 17' 11.6" E
1521B	Cyclical	26° 22' 47.9" S	27° 17' 11.3" E
1521C	Cyclical	26° 22' 47.9" S	27° 17' 11.3" E
1521D	Cyclical	26° 22' 47.9" S	27° 17' 11.3" E
1522A	Cyclical	26° 19' 26.2" S	27° 25' 28.1" E
1522B	Cyclical	26° 19' 26.2" S	27° 25' 28.1" E
1522C	Cyclical	26° 19' 26.2" S	27° 25' 28.1" E
1522D	Cyclical	26° 19' 26.2" S	27° 25' 28.1" E
1523A	Cyclical	26° 20' 06.9" S	27° 25' 41.2" E
1523B	Cyclical	26° 20' 06.9" S	27° 25' 41.2" E
1523C	Cyclical	26° 20' 06.9" S	27° 25' 41.2" E
1523D	Cyclical	26° 20' 06.9" S	27° 25' 41.2" E
1524B	Cyclical	26° 19' 31.4" S	27° 28' 49.5" E
1524C	Cyclical	26° 19' 31.4" S	27° 28' 49.5" E
1524D	Cyclical	26° 19' 31.4" S	27° 28' 49.5" E
1525A	Cyclical	26° 17' 29.7" S	27° 22' 42.8" E
1525C	Cyclical	26° 17' 29.7" S	27° 22' 42.8" E
1525D	Cyclical	26° 17' 29.7" S	27° 22' 42.8" E
1526A	Cyclical	26° 12' 41.3" S	27° 26' 02.1" E
1526B	Cyclical	26° 12' 41.3" S	27° 26' 02.1" E
1526C	Cyclical	26° 12' 41.3" S	27° 26' 02.1" E
1527A	Cyclical	26° 13' 11.6" S	27° 28' 08.0" E
1527B	Cyclical	26° 13' 11.6" S	27° 28' 08.0" E
1527D	Cyclical	26° 13' 11.6" S	27° 28' 08.0" E
1528A	Cyclical	26° 05' 25.4" S	27° 26' 42.5" E
1528B	Cyclical	26° 05' 25.4" S	27° 26' 42.5" E
1528C	Cyclical	26° 05' 25.4" S	27° 26' 42.5" E
1529A	Cyclical	26° 10' 14.1" S	27° 26' 27.6" E
1529C	Cyclical	26° 10' 14.1" S	27° 26' 27.6" E
1529D	Cyclical	26° 10' 14.1" S	27° 26' 27.6" E
1530B	Cyclical	26° 26' 55.3" S	27° 26' 18.4" E
1530C	Cyclical	26° 26' 55.3" S	27° 26' 18.4" E
1530D	Cyclical	26° 26' 55.3" S	27° 26' 18.4" E
1531B	Cyclical	26° 31' 24.3" S	27° 19' 33.0" E
1531C	Cyclical	26° 31' 24.3" S	27° 19' 33.0" E
1531D	Cyclical	26° 31' 24.3" S	27° 19' 33.0" E
1532A	Cyclical	26° 31' 52.4" S	27° 18' 57.4" E
1532B	Cyclical	26° 31' 52.4" S	27° 18' 57.4" E
1532D	Cyclical	26° 31' 52.4" S	27° 18' 57.4" E
1533A	Cyclical	26° 33' 17.9" S	27° 17' 08.0" E
1533B	Cyclical	26° 33' 17.9" S	27° 17' 08.0" E
1533C	Cyclical	26° 33' 17.9" S	27° 17' 08.0" E
1533D	Cyclical	26° 33' 17.9" S	27° 17' 08.0" E
1534A	Cyclical	26° 35' 59.5" S	27° 14' 08.5" E

1534C	Cyclical	26° 35' 59.5" S	27° 14' 08.5" E
1534D	Cyclical	26° 35' 59.5" S	27° 14' 08.5" E
1535A	Cyclical	26° 37' 06.7" S	27° 15' 32.1" E
1535B	Cyclical	26° 37' 06.7" S	27° 15' 32.1" E
1535D	Cyclical	26° 37' 06.7" S	27° 15' 32.1" E
1536A	Cyclical	26° 04' 15.1" S	27° 40' 12.7" E
1536B	Cyclical	26° 04' 15.1" S	27° 40' 12.7" E
1536C	Cyclical	26° 04' 15.1" S	27° 40' 12.7" E
1536D	Cyclical	26° 04' 15.1" S	27° 40' 12.7" E
1537A	Cyclical	26° 05' 46.6" S	27° 40' 56.9" E
1537B	Cyclical	26° 05' 46.6" S	27° 40' 56.9" E
1537C	Cyclical	26° 05' 46.6" S	27° 40' 56.9" E
1538A	Cyclical	26° 06' 25.4" S	27° 46' 42.0" E
1538B	Cyclical	26° 06' 25.4" S	27° 46' 42.0" E
1538D	Cyclical	26° 06' 25.4" S	27° 46' 42.0" E
1539A	Cyclical	26° 06' 25.3" S	27° 46' 42.0" E
1539B	Cyclical	26° 06' 25.3" S	27° 46' 42.0" E
1539C	Cyclical	26° 06' 25.3" S	27° 46' 42.0" E
1539D	Cyclical	26° 06' 25.3" S	27° 46' 42.0" E
1540A	Cyclical	26° 10' 46.2" S	27° 45' 35.7" E
1540B	Cyclical	26° 10' 46.2" S	27° 45' 35.7" E
1540D	Cyclical	26° 10' 46.2" S	27° 45' 35.7" E
1541A	Cyclical	25° 58' 40.6" S	27° 41' 20.7" E
1541C	Cyclical	25° 58' 40.6" S	27° 41' 20.7" E
1541D	Cyclical	25° 58' 40.6" S	27° 41' 20.7" E
1542A	Cyclical	26° 26' 58.6" S	27° 32' 23.7" E
1542B	Cyclical	26° 26' 58.6" S	27° 32' 23.7" E
1542C	Cyclical	26° 26' 58.6" S	27° 32' 23.7" E
1543A	Cyclical	26° 29' 33.5" S	27° 32' 25.9" E
1543B	Cyclical	26° 29' 33.5" S	27° 32' 25.9" E
1543C	Cyclical	26° 29' 33.5" S	27° 32' 25.9" E
1543D	Cyclical	26° 29' 33.5" S	27° 32' 25.9" E
1544A	Cyclical	26° 30' 56.5" S	27° 32' 02.5" E
1544B	Cyclical	26° 30' 56.5" S	27° 32' 02.5" E
1544C	Cyclical	26° 30' 56.5" S	27° 32' 02.5" E
1545A	Cyclical	26° 32' 29.6" S	27° 34' 10.8" E
1545B	Cyclical	26° 32' 29.6" S	27° 34' 10.8" E
1545D	Cyclical	26° 32' 29.6" S	27° 34' 10.8" E
1546B	Cyclical	26° 32' 42.7" S	27° 32' 47.4" E
1546C	Cyclical	26° 32' 42.7" S	27° 32' 47.4" E
1546D	Cyclical	26° 32' 42.7" S	27° 32' 47.4" E
1547A	Cyclical	26° 34' 24.1" S	27° 33' 10.8" E
1547B	Cyclical	26° 34' 24.1" S	27° 33' 10.8" E
1547C	Cyclical	26° 34' 24.1" S	27° 33' 10.8" E
1548A	Cyclical	26° 37' 27.5" S	27° 33' 05.5" E
1548B	Cyclical	26° 37' 27.5" S	27° 33' 05.5" E
1548D	Cyclical	26° 37' 27.5" S	27° 33' 05.5" E
1549A	Cyclical	26° 37' 33.4" S	27° 30' 27.5" E
1549B	Cyclical	26° 37' 33.4" S	27° 30' 27.5" E
1549C	Cyclical	26° 37' 33.4" S	27° 30' 27.5" E
1549D	Cyclical	26° 37' 33.4" S	27° 30' 27.5" E
1550A	Cyclical	26° 34' 33.6" S	27° 30' 53.1" E
1550C	Cyclical	26° 34' 33.6" S	27° 30' 53.1" E
1550D	Cyclical	26° 34' 33.6" S	27° 30' 53.1" E
1551A	Cyclical	26° 30' 01.4" S	27° 30' 20.8" E
1551B	Cyclical	26° 30' 01.4" S	27° 30' 20.8" E
1551C	Cyclical	26° 30' 01.4" S	27° 30' 20.8" E
1551D	Cyclical	26° 30' 01.4" S	27° 30' 20.8" E
1552A	Cyclical	26° 29' 33.6" S	27° 29' 41.5" E
1552B	Cyclical	26° 29' 33.6" S	27° 29' 41.5" E
1552C	Cyclical	26° 29' 33.6" S	27° 29' 41.5" E
1552D	Cyclical	26° 29' 33.6" S	27° 29' 41.5" E
1553A	Cyclical	26° 32' 22.0" S	27° 30' 17.2" E
1553B	Cyclical	26° 32' 22.0" S	27° 30' 17.2" E
1553C	Cyclical	26° 32' 22.0" S	27° 30' 17.2" E
1553D	Cyclical	26° 32' 22.0" S	27° 30' 17.2" E
1554A	Cyclical	26° 36' 37.3" S	27° 25' 18.5" E
1554B	Cyclical	26° 36' 37.3" S	27° 25' 18.5" E
1554C	Cyclical	26° 36' 37.3" S	27° 25' 18.5" E
1554D	Cyclical	26° 36' 37.3" S	27° 25' 18.5" E
1555B	Cyclical	26° 36' 39.5" S	27° 23' 51.9" E
1555C	Cyclical	26° 36' 39.5" S	27° 23' 51.9" E
1555D	Cyclical	26° 36' 39.5" S	27° 23' 51.9" E
1556B	Cyclical	26° 36' 36.8" S	27° 23' 21.1" E
1556C	Cyclical	26° 36' 36.8" S	27° 23' 21.1" E
1556D	Cyclical	26° 36' 36.8" S	27° 23' 21.1" E
1557A	Cyclical	26° 36' 46.4" S	27° 23' 27.3" E
1557B	Cyclical	26° 36' 46.4" S	27° 23' 27.3" E
1557D	Cyclical	26° 36' 46.4" S	27° 23' 27.3" E
1558A	Cyclical	26° 28' 06.7" S	27° 37' 10.7" E
1558C	Cyclical	26° 28' 06.7" S	27° 37' 10.7" E
1558D	Cyclical	26° 28' 06.7" S	27° 37' 10.7" E
1559B	Cyclical	26° 31' 43.0" S	27° 11' 20.9" E
1559C	Cyclical	26° 31' 43.0" S	27° 11' 20.9" E
1559D	Cyclical	26° 31' 43.0" S	27° 11' 20.9" E
1560B	Cyclical	26° 37' 43.3" S	27° 40' 57.4" E
1560C	Cyclical	26° 37' 43.3" S	27° 40' 57.4" E
1560D	Cyclical	26° 37' 43.3" S	27° 40' 57.4" E
1561A	Cyclical	26° 19' 28.3" S	27° 23' 05.2" E
1561C	Cyclical	26° 19' 28.3" S	27° 23' 05.2" E
1561D	Cyclical	26° 19' 28.3" S	27° 23' 05.2" E
1562A	Cyclical	26° 20' 37.0" S	27° 19' 55.3" E
1562B	Cyclical	26° 20' 37.0" S	27° 19' 55.3" E
1562C	Cyclical	26° 20' 37.0" S	27° 19' 55.3" E
1562D	Cyclical	26° 20' 37.0" S	27° 19' 55.3" E
1563A	Cyclical	25° 24' 44.0" S	27° 59' 39.9" E
1563B	Cyclical	25° 24' 44.0" S	27° 59' 39.9" E
1563C	Cyclical	25° 24' 44.0" S	27° 59' 39.9" E
1563D	Cyclical	25° 24' 44.0" S	27° 59' 39.9" E
1563E	Cyclical	25° 24' 44.0" S	27° 59' 39.9" E
1564A	Cyclical	25° 25' 51.1" S	27° 57' 49.4" E
1564B	Cyclical	25° 25' 51.1" S	27° 57' 49.4" E
1564C	Cyclical	25° 25' 51.1" S	27° 57' 49.4" E
1565A	Cyclical	25° 24' 47.4" S	27° 57' 03.9" E
1565B	Cyclical	25° 24' 47.4" S	27° 57' 03.9" E
1565C	Cyclical	25° 24' 47.4" S	27° 57' 03.9" E
1565D	Cyclical	25° 24' 47.4" S	27° 57' 03.9" E
1566A	Cyclical	25° 23' 47.6" S	27° 57' 43.8" E
1566B	Cyclical	25° 23' 47.6" S	27° 57' 43.8" E
1566C	Cyclical	25° 23' 47.6" S	27° 57' 43.8" E
1566D	Cyclical	25° 23' 47.6" S	27° 57' 43.8" E
1567A	Cyclical	25° 22' 52.5" S	27° 58' 16.4" E
1567B	Cyclical	25° 22' 52.5" S	27° 58' 16.4" E
1567C	Cyclical	25° 22' 52.5" S	27° 58' 16.4" E
1567D	Cyclical	25° 22' 52.5" S	27° 58' 16.4" E
1568A	Cyclical	25° 23' 49.2" S	28° 08' 58.9" E
1568C	Cyclical	25° 23' 49.2" S	28° 08' 58.9" E
1568D	Cyclical	25° 23' 49.2" S	28° 08' 58.9" E
1569A	Cyclical	25° 23' 34.5" S	28° 12' 34.9" E
1569B	Cyclical	25° 23' 34.5" S	28° 12' 34.9" E
1569C	Cyclical	25° 23' 34.5" S	28° 12' 34.9" E
1569D	Cyclical	25° 23' 34.5" S	28° 12' 34.9" E
1570A	Cyclical	25° 23' 46.1" S	28° 14' 22.1" E
1570B	Cyclical	25° 23' 46.1" S	28° 14' 22.1" E
1570C	Cyclical	25° 23' 46.1" S	28° 14' 22.1" E

1570D	Cyclical	25° 23' 46.1"S	28° 14' 22.1"E
1571A	Cyclical	25° 23' 15.6"S	28° 15' 09.2"E
1571B	Cyclical	25° 23' 15.6"S	28° 15' 09.2"E
1571C	Cyclical	25° 23' 15.6"S	28° 15' 09.2"E
1571D	Cyclical	25° 23' 15.6"S	28° 15' 09.2"E
1572A	Cyclical	25° 21' 32.7"S	28° 14' 53.6"E
1572B	Cyclical	25° 21' 32.7"S	28° 14' 53.6"E
1572C	Cyclical	25° 21' 32.7"S	28° 14' 53.6"E
1572D	Cyclical	25° 21' 32.7"S	28° 14' 53.6"E
1573A	Cyclical	25° 24' 10.0"S	28° 14' 56.5"E
1573B	Cyclical	25° 24' 10.0"S	28° 14' 56.5"E
1573C	Cyclical	25° 24' 10.0"S	28° 14' 56.5"E
1573D	Cyclical	25° 24' 10.0"S	28° 14' 56.5"E
1576A	Cyclical	26° 00' 44.4" S 27° 52' 49.7" E	
1576C	Cyclical	26° 00' 44.4" S 27° 52' 49.7" E	
1577A	Cyclical	26° 43' 06.9" S 27° 46' 33.7" E	
1577B	Cyclical	26° 43' 06.9" S 27° 46' 33.7" E	
1577C	Cyclical	26° 43' 06.9" S 27° 46' 33.7" E	
1577D	Cyclical	26° 43' 06.9" S 27° 46' 33.7" E	
1578A	Cyclical	26° 38' 00.6" S 28° 01' 25.1" E	
1578B	Cyclical	26° 38' 00.6" S 28° 01' 25.1" E	
1578C	Cyclical	26° 38' 00.6" S 28° 01' 25.1" E	
1578D	Cyclical	26° 38' 00.6" S 28° 01' 25.1" E	
1579A	Cyclical	26° 37' 04.1" S 28° 02' 11.4" E	
1579C	Cyclical	26° 37' 04.1" S 28° 02' 11.4" E	
1579D	Cyclical	26° 37' 04.1" S 28° 02' 11.4" E	
1580A	Cyclical	26° 36' 22.8" S 28° 04' 28.4" E	
1580B	Cyclical	26° 36' 22.8" S 28° 04' 28.4" E	
1580C	Cyclical	26° 36' 22.8" S 28° 04' 28.4" E	
1581A	Cyclical	26° 46' 01.3" S 28° 16' 29.6" E	
1581C	Cyclical	26° 46' 01.3" S 28° 16' 29.6" E	
1581D	Cyclical	26° 46' 01.3" S 28° 16' 29.6" E	
1582A	Cyclical	26° 29' 53.1" S 28° 04' 57.0" E	
1582B	Cyclical	26° 29' 53.1" S 28° 04' 57.0" E	
1582D	Cyclical	26° 29' 53.1" S 28° 04' 57.0" E	
1583A	Cyclical	26° 29' 27.2" S 28° 03' 29.5" E	
1583B	Cyclical	26° 29' 27.2" S 28° 03' 29.5" E	
1583C	Cyclical	26° 29' 27.2" S 28° 03' 29.5" E	
1583D	Cyclical	26° 29' 27.2" S 28° 03' 29.5" E	
1584A	Cyclical	26° 25' 09.7" S 28° 07' 10.5" E	
1584B	Cyclical	26° 25' 09.7" S 28° 07' 10.5" E	
1584C	Cyclical	26° 25' 09.7" S 28° 07' 10.5" E	
1584D	Cyclical	26° 25' 09.7" S 28° 07' 10.5" E	
1585A	Cyclical	26° 44' 24.0" S 27° 47' 31.5" E	
1585B	Cyclical	26° 44' 24.0" S 27° 47' 31.5" E	
1585D	Cyclical	26° 44' 24.0" S 27° 47' 31.5" E	
1586A	Cyclical	26° 17' 57.2" S 27° 48' 56.2" E	
1586B	Cyclical	26° 17' 57.2" S 27° 48' 56.2" E	
1586C	Cyclical	26° 17' 57.2" S 27° 48' 56.2" E	
1586D	Cyclical	26° 17' 57.2" S 27° 48' 56.2" E	
1587A	Cyclical	26° 02' 14.2" S	28° 03' 39.8"E
1587B	Cyclical	26° 02' 14.2" S	28° 03' 39.8"E
1587C	Cyclical	26° 02' 14.2" S	28° 03' 39.8"E
1587D	Cyclical	26° 02' 14.2" S	28° 03' 39.8"E
1588A	Cyclical	26° 03' 57.5" S 28° 05' 32.7" E	
1588C	Cyclical	26° 03' 57.5" S 28° 05' 32.7" E	
1588D	Cyclical	26° 03' 57.5" S 28° 05' 32.7" E	
1589A	Cyclical	26° 01' 00.7" S 28° 07' 03.6" E	
1590A	Cyclical	25° 59' 16.6" S	28° 07' 55.2"E
1590C	Cyclical	25° 59' 16.6" S	28° 07' 55.2"E
1590D	Cyclical	25° 59' 16.6" S	28° 07' 55.2"E
1591B	Cyclical	25° 57' 23.5" S 28° 11' 45.4" E	
1591C	Cyclical	25° 57' 23.5" S 28° 11' 45.4" E	
1591D	Cyclical	25° 57' 23.5" S 28° 11' 45.4" E	
1592A	Cyclical	26° 02' 01.6" S 28° 15' 30.1" E	
1592B	Cyclical	26° 02' 01.6" S 28° 15' 30.1" E	
1592C	Cyclical	26° 02' 01.6" S 28° 15' 30.1" E	
1592D	Cyclical	26° 02' 01.6" S 28° 15' 30.1" E	
1593B	Cyclical	25° 58' 49.3" S 28° 19' 14.4" E	
1593C	Cyclical	25° 58' 49.3" S 28° 19' 14.4" E	
1593D	Cyclical	25° 58' 49.3" S 28° 19' 14.4" E	
1594A	Cyclical	26° 08' 09.2" S 28° 17' 33.0" E	
1594B	Cyclical	26° 08' 09.2" S 28° 17' 33.0" E	
1594C	Cyclical	26° 08' 09.2" S 28° 17' 33.0" E	
1594D	Cyclical	26° 08' 09.2" S 28° 17' 33.0" E	
1595A	Cyclical	26° 05' 59.4" S 28° 15' 10.0" E	
1595B	Cyclical	26° 05' 59.4" S 28° 15' 10.0" E	
1595C	Cyclical	26° 05' 59.4" S 28° 15' 10.0" E	
1595D	Cyclical	26° 05' 59.4" S 28° 15' 10.0" E	
1598A	Cyclical	25° 55' 40.9" S 28° 36' 53.9" E	
1598B	Cyclical	25° 55' 40.9" S 28° 36' 53.9" E	
1598C	Cyclical	25° 55' 40.9" S 28° 36' 53.9" E	
1598D	Cyclical	25° 55' 40.9" S 28° 36' 53.9" E	
1599A	Cyclical	25° 44' 55.9" S 28° 38' 24.7" E	
1599C	Cyclical	25° 44' 55.9" S 28° 38' 24.7" E	
1599D	Cyclical	25° 44' 55.9" S 28° 38' 24.7" E	
1600A	Cyclical	25° 42' 53.1" S 28° 37' 32.7" E	
1600C	Cyclical	25° 42' 53.1" S 28° 37' 32.7" E	
1600D	Cyclical	25° 42' 53.1" S 28° 37' 32.7" E	
1601A	Cyclical	25° 56' 54.3" S 27° 30' 56.2" E	
1601B	Cyclical	25° 56' 54.3" S 27° 30' 56.2" E	
1601D	Cyclical	25° 56' 54.3" S 27° 30' 56.2" E	
1602A	Cyclical	26° 39' 02.8" S 27° 41' 12.1" E	
1602C	Cyclical	26° 39' 02.8" S 27° 41' 12.1" E	
1602D	Cyclical	26° 39' 02.8" S 27° 41' 12.1" E	
1603A	Cyclical	25° 35' 13.5" S 28° 04' 29.2" E	
1603B	Cyclical	25° 35' 13.5" S 28° 04' 29.2" E	
1603C	Cyclical	25° 35' 13.5" S 28° 04' 29.2" E	
1603D	Cyclical	25° 35' 13.5" S 28° 04' 29.2" E	
1604A	Cyclical	25° 59' 53.5" S 27° 32' 15.9" E	
1604B	Cyclical	25° 59' 53.5" S 27° 32' 15.9" E	
1604C	Cyclical	25° 59' 53.5" S 27° 32' 15.9" E	
1604D	Cyclical	25° 59' 53.5" S 27° 32' 15.9" E	
1605A	Cyclical	25° 59' 53.3" S 27° 32' 38.1" E	
1605C	Cyclical	25° 59' 53.3" S 27° 32' 38.1" E	
1605D	Cyclical	25° 59' 53.3" S 27° 32' 38.1" E	
1606A	Cyclical	25° 59' 56.4" S 27° 32' 41.1" E	
1606B	Cyclical	25° 59' 56.4" S 27° 32' 41.1" E	
1606C	Cyclical	25° 59' 56.4" S 27° 32' 41.1" E	
1606D	Cyclical	25° 59' 56.4" S 27° 32' 41.1" E	
1607A	Cyclical	26° 00' 01.6" S 27° 32' 47.9" E	
1607B	Cyclical	26° 00' 01.6" S 27° 32' 47.9" E	
1607C	Cyclical	26° 00' 01.6" S 27° 32' 47.9" E	
1608A	Cyclical	26° 00' 51.8" S 27° 36' 32.3" E	
1608B	Cyclical	26° 00' 51.8" S 27° 36' 32.3" E	
1608D	Cyclical	26° 00' 51.8" S 27° 36' 32.3" E	
1609A	Cyclical	26° 02' 41.7" S 27° 37' 52.6" E	
1609B	Cyclical	26° 02' 41.7" S 27° 37' 52.6" E	
1609C	Cyclical	26° 02' 41.7" S 27° 37' 52.6" E	
1610A	Cyclical	26° 24' 01.4" S 28° 08' 55.2" E	
1610B	Cyclical	26° 24' 01.4" S 28° 08' 55.2" E	
1610C	Cyclical	26° 24' 01.4" S 28° 08' 55.2" E	
1610D	Cyclical	26° 24' 01.4" S 28° 08' 55.2" E	
1611B	Cyclical	26° 29' 37.7" S 27° 22' 09.3" E	
1611C	Cyclical	26° 29' 37.7" S 27° 22' 09.3" E	

1611D	Cyclical	26° 29' 37.7" S	27° 22' 09.3" E
1612A	Cyclical	26° 29' 36.1" S	27° 22' 16.4" E
1612B	Cyclical	26° 29' 36.1" S	27° 22' 16.4" E
1612D	Cyclical	26° 29' 36.1" S	27° 22' 16.4" E
1613A	Cyclical	26° 28' 50.9" S	27° 24' 13.9" E
1613B	Cyclical	26° 28' 50.9" S	27° 24' 13.9" E
1613C	Cyclical	26° 28' 50.9" S	27° 24' 13.9" E
1614B	Cyclical	26° 25' 35.5" S	27° 31' 26.9" E
1614C	Cyclical	26° 25' 35.5" S	27° 31' 26.9" E
1614D	Cyclical	26° 25' 35.5" S	27° 31' 26.9" E
1615A	Cyclical	26° 25' 27.1" S	27° 31' 42.0" E
1615B	Cyclical	26° 25' 27.1" S	27° 31' 42.0" E
1615D	Cyclical	26° 25' 27.1" S	27° 31' 42.0" E
1616A	Cyclical	26° 36' 27.3" S	27° 24' 06.5" E
1616B	Cyclical	26° 36' 27.3" S	27° 24' 06.5" E
1616C	Cyclical	26° 36' 27.3" S	27° 24' 06.5" E
1616D	Cyclical	26° 36' 27.3" S	27° 24' 06.5" E
1617A	Cyclical	26° 27' 49.7" S	27° 29' 40.4" E
1617C	Cyclical	26° 27' 49.7" S	27° 29' 40.4" E
1617D	Cyclical	26° 27' 49.7" S	27° 29' 40.4" E
1618A	Cyclical	26° 37' 03.8" S	27° 17' 20.0" E
1618B	Cyclical	26° 37' 03.8" S	27° 17' 20.0" E
1618D	Cyclical	26° 37' 03.8" S	27° 17' 20.0" E
1619A	Cyclical	26° 37' 20.3" S	27° 29' 15.7" E
1619B	Cyclical	26° 37' 20.3" S	27° 29' 15.7" E
1619D	Cyclical	26° 37' 20.3" S	27° 29' 15.7" E
1620A	Cyclical	26° 38' 12.0" S	28° 13' 12.0" E
1620B	Cyclical	26° 38' 12.0" S	28° 13' 12.0" E
1620C	Cyclical	26° 38' 12.0" S	28° 13' 12.0" E
1621A	Cyclical	26° 38' 29.3" S	28° 10' 41.5" E
1621B	Cyclical	26° 38' 29.3" S	28° 10' 41.5" E
1621D	Cyclical	26° 38' 29.3" S	28° 10' 41.5" E
1622A	Cyclical	26° 36' 03.3" S	28° 10' 47.7" E
1622C	Cyclical	26° 36' 03.3" S	28° 10' 47.7" E
1622D	Cyclical	26° 36' 03.3" S	28° 10' 47.7" E
1623B	Cyclical	26° 44' 14.8" S	28° 20' 25.3" E
1623C	Cyclical	26° 44' 14.8" S	28° 20' 25.3" E
1623D	Cyclical	26° 44' 14.8" S	28° 20' 25.3" E
1624A	Cyclical	26° 32' 08.0" S	28° 01' 21.9" E
1624B	Cyclical	26° 32' 08.0" S	28° 01' 21.9" E
1624C	Cyclical	26° 32' 08.0" S	28° 01' 21.9" E
1624D	Cyclical	26° 32' 08.0" S	28° 01' 21.9" E
1625A	Cyclical	26° 33' 43.4" S	28° 00' 06.7" E
1625B	Cyclical	26° 33' 43.4" S	28° 00' 06.7" E
1625C	Cyclical	26° 33' 43.4" S	28° 00' 06.7" E
1625D	Cyclical	26° 33' 43.4" S	28° 00' 06.7" E
1626B	Cyclical	26° 33' 34.8" S	27° 59' 49.2" E
1626C	Cyclical	26° 33' 34.8" S	27° 59' 49.2" E
1626D	Cyclical	26° 33' 34.8" S	27° 59' 49.2" E
1627A	Cyclical	26° 33' 23.2" S	28° 01' 54.2" E
1627B	Cyclical	26° 33' 23.2" S	28° 01' 54.2" E
1627D	Cyclical	26° 33' 23.2" S	28° 01' 54.2" E
1628A	Cyclical	26° 33' 06.7" S	27° 58' 47.0" E
1628B	Cyclical	26° 33' 06.7" S	27° 58' 47.0" E
1628D	Cyclical	26° 33' 06.7" S	27° 58' 47.0" E
1629A	Cyclical	26° 16' 09.4" S	28° 31' 04.1" E
1629B	Cyclical	26° 16' 09.4" S	28° 31' 04.1" E
1629C	Cyclical	26° 16' 09.4" S	28° 31' 04.1" E
1629D	Cyclical	26° 16' 09.4" S	28° 31' 04.1" E
1630A	Cyclical	26° 13' 48.4" S	28° 33' 05.0" E
1630B	Cyclical	26° 13' 48.4" S	28° 33' 05.0" E
1630D	Cyclical	26° 13' 48.4" S	28° 33' 05.0" E
1631A	Cyclical	26° 14' 39.2" S	28° 36' 25.0" E
1631C	Cyclical	26° 14' 39.2" S	28° 36' 25.0" E
1631D	Cyclical	26° 14' 39.2" S	28° 36' 25.0" E
1632B	Cyclical	26° 17' 32.7" S	28° 37' 36.3" E
1632C	Cyclical	26° 17' 32.7" S	28° 37' 36.3" E
1632D	Cyclical	26° 17' 32.7" S	28° 37' 36.3" E
1633A	Cyclical	26° 18' 42.3" S	28° 40' 22.1" E
1633C	Cyclical	26° 18' 42.3" S	28° 40' 22.1" E
1633D	Cyclical	26° 18' 42.3" S	28° 40' 22.1" E
1634B	Cyclical	26° 19' 20.0" S	28° 40' 25.1" E
1634C	Cyclical	26° 19' 20.0" S	28° 40' 25.1" E
1634D	Cyclical	26° 19' 20.0" S	28° 40' 25.1" E
1635A	Cyclical	25° 52' 39.7" S	27° 37' 13.3" E
1635B	Cyclical	25° 52' 39.7" S	27° 37' 13.3" E
1635C	Cyclical	25° 52' 39.7" S	27° 37' 13.3" E
1636A	Cyclical	25° 51' 22.7" S	27° 37' 12.6" E
1636B	Cyclical	25° 51' 22.7" S	27° 37' 12.6" E
1636D	Cyclical	25° 51' 22.7" S	27° 37' 12.6" E
1637A	Cyclical	25° 50' 43.7" S	27° 40' 03.4" E
1637C	Cyclical	25° 50' 43.7" S	27° 40' 03.4" E
1637D	Cyclical	25° 50' 43.7" S	27° 40' 03.4" E
1638A	Cyclical	25° 51' 18.5" S	27° 40' 21.5" E
1638B	Cyclical	25° 51' 18.5" S	27° 40' 21.5" E
1638D	Cyclical	25° 51' 18.5" S	27° 40' 21.5" E
1639A	Cyclical	25° 49' 09.0" S	28° 20' 25.7" E
1639B	Cyclical	25° 49' 09.0" S	28° 20' 25.7" E
1639C	Cyclical	25° 49' 09.0" S	28° 20' 25.7" E
1640A	Cyclical	25° 49' 55.7" S	28° 20' 53.2" E
1640B	Cyclical	25° 49' 55.7" S	28° 20' 53.2" E
1640C	Cyclical	25° 49' 55.7" S	28° 20' 53.2" E
1641A	Cyclical	25° 50' 14.9" S	28° 22' 11.7" E
1641B	Cyclical	25° 50' 14.9" S	28° 22' 11.7" E
1641C	Cyclical	25° 50' 14.9" S	28° 22' 11.7" E
1641D	Cyclical	25° 50' 14.9" S	28° 22' 11.7" E
1642A	Cyclical	25° 53' 30.6" S	28° 23' 06.0" E
1642B	Cyclical	25° 53' 30.6" S	28° 23' 06.0" E
1642D	Cyclical	25° 53' 30.6" S	28° 23' 06.0" E
1643B	Cyclical	25° 50' 47.8" S	28° 16' 46.3" E
1643C	Cyclical	25° 50' 47.8" S	28° 16' 46.3" E
1643D	Cyclical	25° 50' 47.8" S	28° 16' 46.3" E
1644A	Cyclical	26° 03' 37.6" S	28° 31' 55.1" E
1644B	Cyclical	26° 03' 37.6" S	28° 31' 55.1" E
1644C	Cyclical	26° 03' 37.6" S	28° 31' 55.1" E
1644D	Cyclical	26° 03' 37.6" S	28° 31' 55.1" E
1645B	Cyclical	26° 05' 23.2" S	28° 30' 04.1" E
1645C	Cyclical	26° 05' 23.2" S	28° 30' 04.1" E
1645D	Cyclical	26° 05' 23.2" S	28° 30' 04.1" E
1646A	Cyclical	26° 11' 24.9" S	28° 30' 31.7" E
1646B	Cyclical	26° 11' 24.9" S	28° 30' 31.7" E
1646D	Cyclical	26° 11' 24.9" S	28° 30' 31.7" E
1647A	Cyclical	26° 11' 25.7" S	28° 29' 47.5" E
1647B	Cyclical	26° 11' 25.7" S	28° 29' 47.5" E
1647C	Cyclical	26° 11' 25.7" S	28° 29' 47.5" E
1648A	Cyclical	26° 26' 28.5" S	27° 29' 01.1" E
1648B	Cyclical	26° 26' 28.5" S	27° 29' 01.1" E
1648C	Cyclical	26° 26' 28.5" S	27° 29' 01.1" E
1648D	Cyclical	26° 26' 28.5" S	27° 29' 01.1" E
1649A	Cyclical	26° 23' 30.0" S	27° 25' 03.8" E
1649C	Cyclical	26° 23' 30.0" S	27° 25' 03.8" E
1649D	Cyclical	26° 23' 30.0" S	27° 25' 03.8" E
1650A	Cyclical	26° 23' 26.5" S	27° 23' 29.0" E
1650B	Cyclical	26° 23' 26.5" S	27° 23' 29.0" E
1650C	Cyclical	26° 23' 26.5" S	27° 23' 29.0" E

1650D	Cyclical	26° 23' 26.5" S	27° 23' 29.0" E
1651B	Cyclical	26° 14' 09.0" S	27° 36' 37.0" E
1651C	Cyclical	26° 14' 09.0" S	27° 36' 37.0" E
1651D	Cyclical	26° 14' 09.0" S	27° 36' 37.0" E
1652A	Cyclical	26° 12' 14.6" S	27° 37' 55.8" E
1652B	Cyclical	26° 12' 14.6" S	27° 37' 55.8" E
1652C	Cyclical	26° 12' 14.6" S	27° 37' 55.8" E
1652D	Cyclical	26° 12' 14.6" S	27° 37' 55.8" E
1653A	Cyclical	26° 10' 28.2" S	27° 37' 47.8" E
1653B	Cyclical	26° 10' 28.2" S	27° 37' 47.8" E
1653C	Cyclical	26° 10' 28.2" S	27° 37' 47.8" E
1653D	Cyclical	26° 10' 28.2" S	27° 37' 47.8" E
1654A	Cyclical	26° 10' 30.4" S	27° 48' 32.0" E
1654B	Cyclical	26° 10' 30.4" S	27° 48' 32.0" E
1654C	Cyclical	26° 10' 30.4" S	27° 48' 32.0" E
1654D	Cyclical	26° 10' 30.4" S	27° 48' 32.0" E
1655A	Cyclical	26° 12' 43.6" S	27° 48' 13.6" E
1655B	Cyclical	26° 12' 43.6" S	27° 48' 13.6" E
1655C	Cyclical	26° 12' 43.6" S	27° 48' 13.6" E
1655D	Cyclical	26° 12' 43.6" S	27° 48' 13.6" E
1656A	Cyclical	26° 10' 37.6" S	27° 52' 51.4" E
1656C	Cyclical	26° 10' 37.6" S	27° 52' 51.4" E
1656D	Cyclical	26° 10' 37.6" S	27° 52' 51.4" E
1657A	Cyclical	26° 13' 46.4" S	27° 48' 12.5" E
1657B	Cyclical	26° 13' 46.4" S	27° 48' 12.5" E
1657C	Cyclical	26° 13' 46.4" S	27° 48' 12.5" E
1657D	Cyclical	26° 13' 46.4" S	27° 48' 12.5" E
1658C	Cyclical	26° 13' 33.5" S	27° 48' 33.2" E
1658D	Cyclical	26° 13' 33.5" S	27° 48' 33.2" E
1659A	Cyclical	26° 23' 12.3" S	28° 27' 39.0" E
1659B	Cyclical	26° 23' 12.3" S	28° 27' 39.0" E
1659C	Cyclical	26° 23' 12.3" S	28° 27' 39.0" E
1659D	Cyclical	26° 23' 12.3" S	28° 27' 39.0" E
1660A	Cyclical	26° 24' 13.4" S	28° 28' 57.9" E
1660C	Cyclical	26° 24' 13.4" S	28° 28' 57.9" E
1660D	Cyclical	26° 24' 13.4" S	28° 28' 57.9" E
1661A	Cyclical	26° 25' 17.1" S	28° 27' 20.7" E
1661B	Cyclical	26° 25' 17.1" S	28° 27' 20.7" E
1661C	Cyclical	26° 25' 17.1" S	28° 27' 20.7" E
1661D	Cyclical	26° 25' 17.1" S	28° 27' 20.7" E
1662A	Cyclical	26° 26' 06.8" S	28° 28' 57.7" E
1662B	Cyclical	26° 26' 06.8" S	28° 28' 57.7" E
1662C	Cyclical	26° 26' 06.8" S	28° 28' 57.7" E
1663A	Cyclical	25° 23' 44.9" S	28° 08' 40.4" E
1663B	Cyclical	25° 23' 44.9" S	28° 08' 40.4" E
1663C	Cyclical	25° 23' 44.9" S	28° 08' 40.4" E
1663D	Cyclical	25° 23' 44.9" S	28° 08' 40.4" E
1664B	Cyclical	25° 23' 55.4" S	28° 07' 41.2" E
1664C	Cyclical	25° 23' 55.4" S	28° 07' 41.2" E
1664D	Cyclical	25° 23' 55.4" S	28° 07' 41.2" E
1665A	Cyclical	25° 24' 28.4" S	28° 06' 00.9" E
1665B	Cyclical	25° 24' 28.4" S	28° 06' 00.9" E
1665C	Cyclical	25° 24' 28.4" S	28° 06' 00.9" E
1666A	Cyclical	25° 27' 09.5" S	28° 06' 32.1" E
1666B	Cyclical	25° 27' 09.5" S	28° 06' 32.1" E
1666C	Cyclical	25° 27' 09.5" S	28° 06' 32.1" E
1666D	Cyclical	25° 27' 09.5" S	28° 06' 32.1" E
1667A	Cyclical	25° 24' 43.3" S	28° 08' 43.8" E
1667C	Cyclical	25° 24' 43.3" S	28° 08' 43.8" E
1667D	Cyclical	25° 24' 43.3" S	28° 08' 43.8" E
1668A	Cyclical	25° 32' 00.2" S	28° 06' 58.9" E
1668B	Cyclical	25° 32' 00.2" S	28° 06' 58.9" E
1668C	Cyclical	25° 32' 00.2" S	28° 06' 58.9" E
1669A	Cyclical	25° 33' 32.0" S	28° 06' 58.6" E
1669C	Cyclical	25° 33' 32.0" S	28° 06' 58.6" E
1669D	Cyclical	25° 33' 32.0" S	28° 06' 58.6" E
1670A	Cyclical	25° 33' 25.0" S	28° 06' 29.7" E
1670B	Cyclical	25° 33' 25.0" S	28° 06' 29.7" E
1670C	Cyclical	25° 33' 25.0" S	28° 06' 29.7" E
1670D	Cyclical	25° 33' 25.0" S	28° 06' 29.7" E
1671A	Cyclical	25° 33' 03.1" S	28° 04' 04.5" E
1671B	Cyclical	25° 33' 03.1" S	28° 04' 04.5" E
1671C	Cyclical	25° 33' 03.1" S	28° 04' 04.5" E
1671D	Cyclical	25° 33' 03.1" S	28° 04' 04.5" E
1672A	Cyclical	25° 34' 48.6" S	28° 06' 34.9" E
1672B	Cyclical	25° 34' 48.6" S	28° 06' 34.9" E
1672C	Cyclical	25° 34' 48.6" S	28° 06' 34.9" E
1672D	Cyclical	25° 34' 48.6" S	28° 06' 34.9" E
1673A	Cyclical	25° 31' 37.3" S	28° 06' 32.9" E
1673B	Cyclical	25° 31' 37.3" S	28° 06' 32.9" E
1673C	Cyclical	25° 31' 37.3" S	28° 06' 32.9" E
1673D	Cyclical	25° 31' 37.3" S	28° 06' 32.9" E
1674A	Cyclical	26° 15' 40.0" S	27° 35' 03.0" E
1674C	Cyclical	26° 15' 40.0" S	27° 35' 03.0" E
1674D	Cyclical	26° 15' 40.0" S	27° 35' 03.0" E
1675B	Cyclical	26° 00' 00.8" S	27° 30' 11.1" E
1675C	Cyclical	26° 00' 00.8" S	27° 30' 11.1" E
1675D	Cyclical	26° 00' 00.8" S	27° 30' 11.1" E
1676B	Cyclical	26° 30' 17.3" S	28° 26' 06.6" E
1676C	Cyclical	26° 30' 17.3" S	28° 26' 06.6" E
1676D	Cyclical	26° 30' 17.3" S	28° 26' 06.6" E
1677A	Cyclical	-26.422083 S	27.887444 E
1677B	Cyclical	-26.422083 S	27.887444 E
1677C	Cyclical	-26.422083 S	27.887444 E
1677D	Cyclical	-26.422083 S	27.887444 E



GAUTENG
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA



INTEGRITY PACT FOR BUSINESSES

FIGHTING CORRUPTION, PROMOTING INTEGRITY

1. INTRODUCTION

This agreement is part of the tender document, which shall be signed and submitted along with the tender document. The Chief Executive Officer of the bidding company or his/her authorised representative shall sign the integrity pact. If the winning bidder has not signed this integrity pact during the submission of the bid, the tender/proposal shall be disqualified.

2. OBJECTIVES

Now, therefore, the Gauteng Provincial Government and the Bidder agree to enter into this pre-contract agreement, hereinafter referred to as an integrity pact, to avoid all forms of corruption by following a system that is fair, transparent, and free from any influence/unprejudiced dealings before, during and after the currency of the contract to be entered, with a view to:

- 2.1 Enable the Gauteng Provincial Government to obtain the desired contract at a reasonable and competitive price in conformity to the defined specifications of the works, goods and services; and
- 2.2 Enable bidders to abstain from bribing or any corrupt practice to secure the contract by assuring them that their competitors will refrain from bribing and other corrupt practices and the Gauteng Provincial Government will commit to preventing corruption, in any form by their officials by following transparent procedures.

3. GOVERNANCE

- 3.1 The integrity pact seeks to ensure that both parties comply with all applicable provincial, national, continental, and international laws and regulations regarding fair competition and anti-corruption.

4. ENVIRONMENT

- 4.1 The integrity pact requires that both parties comply with all applicable environmental, health, and safety regulations.

5. PROTECTION OF INFORMATION

- 5.1 The integrity pact seeks to ensure that both parties undertake to protect the confidentiality of information. Each party, when given access to confidential information as part of the business relationship, should not share this information with anyone unless authorised.

6. REPUTATION

- 6.1 The Gauteng Provincial Government wants to work with bidders who are proud of their reputation for fair dealing and quality delivery.
- 6.2 The Gauteng Provincial Government wants to ensure that working with government is reputation enhancing for the supplier.
- 6.3 The Gauteng Provincial Government expects bidders/suppliers to be protective of government's reputation, and ensure that neither they, nor any of their partners or subcontractors, bring government to disrepute by engaging in any act or omission which is reasonably likely to diminish the trust that the public places in government.
- 6.4 The Gauteng Provincial Government further requires its bidders/suppliers to always adhere to ethical conduct even outside their contractual obligation with the Gauteng Provincial Government.

7. VALUES OF THE GAUTENG PROVINCIAL GOVERNMENT

- 7.1 The value system of the Gauteng City Region is shown below:

GAUTENG CITY REGION VALUES SYSTEM	
CORE VALUES	ETHICAL VALUES
Patriotism	Integrity
Purposefulness	Accountability
Team focused	Dignity
Integrity	Transparency
Accountability	Respect
Passionate	Honesty
Activism	

- 7.2 The Gauteng Provincial Government commits to ensure that the values system is embedded into the day-to-day operations of its institutions.

8. COMMITMENTS OF THE GAUTENG PROVINCIAL GOVERNMENT

The Gauteng Provincial Government commits itself to the following:

- 8.1 The GPG commits that its officials will at all times conduct themselves in accordance with Treasury Regulations 16A.81, copy of which is attached marked Annexure A, and that:
- 8.1.1 The GPG is committed to doing business with integrity and proper regard for ethical business practices.
- 8.1.2 The GPG hereby undertakes that no official of the GPG, connected directly or indirectly with the contract will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour, or any material or immaterial benefit or any other advantage from the bidder, either for themselves or for any person, organisation or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.
- 8.1.3 The GPG further confirms that its officials have not favoured any prospective bidder in any form that could afford an undue advantage to that bidder during the tendering stage and will further treat all bidders alike.

8.1.4 The GPG will during the tender process treat all Bidder(s) with equity.

8.1.5 All officials of the GPG shall report any attempted or completed violation of clauses to the following details:

	Gauteng Ethics Hotline	National Anti-Corruption Hotline
Toll-free number	080 1111 633	0800 701 701
SMS call-back	49017	N/A
E-mail	gpethics@behonest.co.za	nach@psc.gov.za
Fax	086 726 1681	0800 204 965
Website	www.thehotline.co.za	www.publicservicecorruptionhotline.org.za
Post	Chief Directorate: Integrity Management Private Bag X61 Marshalltown 2001	Public Service Commission Private X121 Pretoria 0001
Walk-in	Office of the Premier 55 Marshall Street Marshalltown Johannesburg 2001	Gauteng Provincial Office Public Service Commission Schreiner Chambers 6 th Floor 94 Pritchard Street Johannesburg

8.1.6 Following the report on the violation of the above clauses by the official(s), through any source, the GPG shall investigate allegations of such violations against the official or other role players and when justified:

- a) Take steps against such official and other role players (necessary disciplinary proceedings, and/or any other action as deemed fit, bar such officials from further dealings related to the contract process). In such a case, while an enquiry is being conducted by the Gauteng Provincial Government, the proceedings under the contract would not be stalled.
- b) Inform the relevant Treasury of steps taken in 8.1.5(a) against such officials; and
- c) Report any conduct by such official and other role players that may constitute an offence to the South African Police Service.

9. COMMITMENTS OF THE BIDDERS

The bidder commits himself/herself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of his/her bid or during any pre-contract or post contract stage to secure the contract or in furtherance to secure it and commits himself/herself to the following:

- 9.1 The bidder is committed to doing business with integrity and proper regard for ethical business practices.
- 9.2 The bidder will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducements to any official of the Gauteng Provincial Government, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.

- 9.3 The bidder further undertakes that he/she has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducements to an official of the Gauteng Provincial Government or otherwise in procuring the contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Gauteng Provincial Government for showing or forbearing to show favour or disfavor to any person in relation to the contract or any other contract with the Gauteng Provincial Government.
- 9.4 The bidder will not collude with other parties interested in the contract to preclude the competitive bid price, impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- 9.5 The Bidder(s)/Contractor(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 9.6 The Bidder(s)/Contractor(s) will, when presenting his / her bid, disclose any and all payments he /she has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 9.7 In case of sub-contracting, the Principal Contractor shall take the responsibility of adoption of Integrity Pact by the Sub-Contractor.
- 9.8 The bidder shall report any attempted or completed violation of clauses 9.1 to 9.7 including any alleged unethical conduct to the Gauteng Ethics Hotline (details are provided at clause 8.1.4).
- 9.9 The bidder (or anyone acting on its behalf) warrants that:
- 9.9.1 It has not been convicted by a court of law for fraud and/or corruption with respect to the procurement/tendering processes; and/or
- 9.9.2 It has not been convicted by a court of law for theft or extortion; and/or
- 9.9.3 It is not listed on the National Treasury's database of Restricted Suppliers or Register of Tender Defaulters.

10. SANCTIONS FOR VIOLATION

- 10.1 The breach of any aforesaid provisions or providing false information by employers, including manipulation of information by evaluators, shall face administrative charges and penal actions as per the existing relevant rules and laws.
- 10.2 The breach of the Pact or providing false information by the Bidder, or anyone employed by him, or acting on his behalf (whether without the knowledge of the (Bidder), or acting on his/her behalf, shall be dealt with as per the provisions of the Prevention and Combating of Corrupt Activities Act (12 of 2004).
- 10.3 The Gauteng Provincial Government shall also take all or any one of the following actions, wherever required:
- To immediately call off the pre-contract negotiations without giving any compensation to the bidder. However, the proceedings with the other bidder(s) would continue.
 - To immediately cancel the contract, if already awarded/signed, without giving any compensation to the bidder.
 - To recover all sums already paid by the Gauteng Provincial Government. his/her behalf, shall be dealt with as per the provisions of the Prevention and Combating of Corrupt Activities Act (12 of 2004).

- To cancel all or any other contracts with the bidders and GPG shall be entitled to demand and recover from the Contractor liquidated damages of the Contract value.
- To submit the details of the bidder to the National Treasury to register on the database for tender defaulters.

11. CONFLICT OF INTEREST

- 11.1 A conflict of interest involves a conflict between the public duty and private interest (for favor or vengeance) of a public official, in which the public official has private interest which could improperly influence the performance of their official duties and responsibilities. Conflicts of interest would arise in a situation when any concerned members of both parties are related either directly or indirectly or has any association or had any confrontation. Thus, conflict of interest of any tender committee must be declared in a prescribed form.
- 11.2 The bidder shall not lend or borrow any money from or enter any monetary dealings or transactions, directly or indirectly, with any member of the tender committee or officials of the Gauteng Provincial Government, and if he/she does so, the Gauteng Provincial Government shall be entitled forthwith to rescind the contract and all other contracts with the bidder.

12. LEGAL ACTIONS

- 12.1 The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

13. VALIDITY

- 13.1 The validity of this Integrity Pact shall cover the tender process and extend until the completion of the contract to the satisfaction of both the Gauteng Provincial Government and the bidder (service provider).
- 13.2 Should one or several provisions of the Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

GPG INTEGRITY PACT FOR BUSINESSES

BIDDER/SUPPLIER/SERVICE PROVIDER	
Signature of the CEO	
Full name of the CEO	
Tender number	
Date	
